STEREOTYPING OF ELDERLY PATIENTS BY LEARNER NURSES: A PERSONAL CONSTRUCT THEORY STUDY.

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Note- The paragraph headings (numbered in the left hand column, below) are synoptic. Some paragraphs (such as those connecting different sections) have been missed out.

TABLES AND FIGURES

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DECLARATION

This thesis was composed by the writer D.R.C. Kerr. As indicated in the summary it is based upon Bannister and Fransella's interpretation of Kelly's Personal Construct Theory (Bannister and Fransella 1980, Fransella and Bannister 1977). The computer program used for analysis of Repertory Grids was provided by the Medical Research Council under Dr Patrick Slater (via "E.M.A.S.", Edinburgh University). The research reported and discussed in chapters three, four, five and six is original.

SUMMARY

Stereotyping of elderly patients by learner nurses was investigated in the context of the latters' experience on wards where elderly patients were nursed on a long term basis. The theoretical base of the research is Kelly's (1955) Personal Construct Theory, in which man is viewed as building theories about his world, testing these theories against experience, and changing them where necessary in order to enhance their predictive power, and thus make his own actions more effective. Individual's personal theories may be examined by the use of technique called the Repertory Grid. It is argued that theories are made up of "constructs", which most commonly may be thought of as dichotomous verbal labels.

From the literature on Personal Construct Theory, it was argued that stereotypes were aspects of highly predictive personal theories, for which there might be a high cost of change in terms of predictive power. From both the Personal Construct Theory literature, and literature concerning nursing it was argued that the type of "constructs" learner nurses used in stereotyping their patients might affect their ability to empathise with them.

The research reported had three stages:-

a. A First Exploratory Study. In this it was attempted to test the last mentioned hypothesis. This failed to get off the ground as a measurement of empathy did not prove possible.

b. A Second Exploratory Study. In this study the evidence suggested that some learner nurses associated stereotypically "Objective" constructs of patients with "Psychological" constructs.

c. A Main Study. Using Repertory Grids made up of both "provided" and "elicited" constructs the hypothesis that learner nurses who used certain constructs more stereotypically than their peers, would be less likely to alter the predictions associated with them after a period of time on a ward was examined. The evidence from this study suggests that this was indeed the case for two constructs associated

with patient dependency, and cognitive orientation. However, as this was not a general pattern with regard to other constructs, it was suggested that the extent to which a construct was used "superordinately" may be as important in predicting "consistency of predictive pattern" as the extent to which it is used stereotypically, and that this might be the true explanation for the above result.

In a brief review it is finally suggested that a more useful role at present for the Repertory Grid Technique, in relation to studying learner nurses, would be to use it as "conversational tool" to stimulate self directed change of stereotypes.

This research focuses on the implications of, and the extent to which, learner nurses construct and retain stereotypes about patients while they are placed on long term wards for the elderly. Selection of this subject was influenced by comparison of the "official" prescriptive theory of modern nursing, and the writer's actual experience while simultaneously responsible for a long term ward for elderly women, and a long term ward for men (of a wide age range) with radically disabling illnesses such as multiple sclerosis and upper motor neurone disease.

The official theory may be briefly summarised by a quote from the International Council of Nurses pamphlet "Basic Principles of Nursing Care" written by Henderson - "Viewed as a service derived from an analysis of human needs basic nursing care is universally the same. It is the same because all people have common needs; but it is a service of infinite variety because no two persons are alike and each man interprets his human needs in such a way that he creates a unique pattern." (Henderson, 1960, p 9). The term "interprets" is underlined as Henderson earlier argues that the best nurse is one who is able to "get inside the skin" of a patient and understand his perception of the meaning of health, disease, recovery or a "good" death. Wells in a monograph concentrating on the care of the elderly concludes in a similar vein: "The nursing model most likely to be helpful is one focused on the elderly person who is experiencing illness instead of one focused on either his physical problems or the tasks associated with care." (Wells, 1980, p131).

Subjective observation led the writer to believe that in many instances nurses did not perceive patients as individuals, but utilised stereotypes to explain their behaviour. This was most clearly manifested by (at the time) an almost intractable management problem. The two wards which were under the writer's charge were meant to be staffed by the same nursing personnel. However many had an active dislike of working with the men who they described in stereotypic terms such as "demanding" or "difficult". The explanation for this may have been, that because they were articulate

the men were able to express their individual needs while most of the women (who were seemingly confused) could not. Arguably the use of such stereotypic terms as those above means that the reasons for patients behaving in particular ways were ignored. In another ward in the same hospital was an elderly female patient who the night staff regularly recorded in the nursing "Kardex" as being "demanding" as she kept calling for a nurse. It turned out that this was because she kept sliding down off the pillows, which meant that as she had chronic bronchitis she could not breathe comfortably. This patient's individual needs had not been identified, instead her behaviour at night had seemingly been stereotyped. Thus it seemed possible that the stereotyping of the writer's male patients was only the most obvious tip of the iceberg.

It is possible that the most serious aspect of this problem was that the two wards were used as training placements for "pupil" nurses (learner nurses on a two year training program). There was arguably a danger that they would learn the prevalent "local" ideology about the male patients, and other less clearly identifiable groups of patients. This led to the more general question of whether learner nurses did develop stereotypes about the patients they nursed while on their training placements in long term wards for the elderly, and whether this affected their ability to perceive them as individuals. Long term wards for the elderly were used in this study, not only because the care of the patients in these wards was at the time a particular concern of the writer, but because paradoxically they should have afforded learner nurses the maximum opportunity (because many of the patients would be present throughout their stay) of getting to know the patients as individuals.

This research shows another bias, which is reflected in the title. Not long after the writer had obtained a degree in Psychology, and had commenced nurse training, he was asked whether his degree was helpful in nursing. His answer was "no", the degree course had not dealt very much with approaches concerned with understanding the experience of individuals. One exception to this rule was Kelly's (1955) Personal Construct Theory. It does seem to this writer axiomatic, that if (as seems to be the case) Henderson's maxim above

is held to summarise the moral basis of the profession, then nurse researchers, at least when utilising the social sciences, should reflect this morality in their theoretical orientation.

CHAPTER ONE

THEORETICAL AND TECHNICAL FRAMEWORK

Part A - Theoretical Framework

1.1 This research was carried out in the academic discipline of Psychology. This is by no means a unitary discipline, for instance the British Psychological Society publication "Models of man" (Chapman and Jones 1980) posits at least twenty "models". Joynson in Chapter One of this text argues that "the psychological world is divided into two camps; on one side are the champions of mechanisms, on the other side the champions of the person". (Joynson, 1981, p2). This research is in the latter "humanist" camp. This is for two reasons:-

1.2 1) Arguably, it is more useful to perceive man as a rule "following" organism as opposed to a rule "obeying" organism. The reason for this may be illustrated by examining how the behaviour of players in a chess game might be studied. Melden (1964) argues that chess is unintelligible without reference to the rules being "followed". Attempts to explain the movements of the individual players by reference to physiological or psychological processes will he argues not achieve this. The latter sort of explanatory paradigm is arguably similar to that of Newton explaining the dropping of an apple by postulating the Law of Gravity. The apple has no choice in obeying this law. In the wider context of human behaviour it follows that man when viewed as a rule following organism has a choice of actions. Learner nurses in this study are thus seen as having free will, and are not the shuttlecocks of causative variables. There is one further aspect of perceiving man as "rule following" that must be further considered. Rickman (1967) argues that for an observer to work out what the rules of chess are it is necessary for him to imagine what it is like to be playing chess. To do this it is necessary for the observer to identify playing chess as a recognisable human activity, of some aspect of which he has had some experience; e.g. following rules of a game. In other words the observer extrapolates from his own experience. As another example, an archaeologist finding hieroglyphics is unable to proceed if he does not identify this as similar to an activity he himself practises

- writing and communication.

1.3 (2) There is a moral arguement that may be summarised by a quote from Huxley's novel "Eyeless in Gaza":- "Words express thoughts..... and thoughts determine actions. If you call a man a bug, it means you propose to treat him as a bug". (Huxley, 1955, p372) Learner Nurses, such as those who are subjects in this research, are often enjoined to treat their patients as human beings (e.g. Wilson-Barnett 1980). It would ill behove a researcher to apply a different set of standards when studying them.

1.4 The physical and social context of this research was wards for the elderly in several different hospitals in the West of Scotland. The in-patient section of these hospitals, arguably, approximately fits Goffman's (1968) description of "total institutions". He argues that in these institutions, e.g. prisons, army barracks, eventide homes; individuals sleep, play and work in the same place, life is lived throughout the day with the same participants, life is directed throughout the day by one superordinate authority to a rational plan.

1.5 Goffman further argues that staff within such institutions have two ways of understanding the inmates of patients. Thus he writes (in the context of mental hospitals and prisons):-
"Although there is a psychiatric view of mental disorder and an environmental view of crime and counter-revolutionary activity, both freeing the offender from moral responsibility for his offence, total institutions can little afford this particular brand of determinism. Inmates must be caused to self direct themselves in a manageable way, and for this to be promoted, both desired and undesired conduct must be defined as springing from the personal will and character of the individual himself, and defined as something he can himself do something about. In short each institutional perspective contains a personal morality, and in each total institution we can see in miniature the development of something akin to a functionalist view of moral life.

1.6 The translation of inmate behaviour into moralistic terms suited to the institutions avowed perspective will necessarily contain some

broad presuppositions as to the character of human beings. Given the inmates of whom they have charge and the processing that must be done to them, the staff tend to evolve what may be thought of as a theory of human nature". (Goffman, 1968, pp83-84.)

1.7 Arguably this "theory of human nature" above is "constructed" by human beings. In the context of the quote above it can be described as a "social construction" (Berger and Luckmann 1971). However Berger points out "society defines us, but is in turn defined by us". (Berger, 1966, p149). Thus the construction of "theories of human nature" may possibly be looked at from the point of view of two "camera angles" - the social and the personal. While the two are complementary, this research concentrates on the personal angle. Its subject is learner nurses' personal construction of theories regarding elderly patients in hospital, with special emphasis on their use of stereotyping. Appropriately the theory of Psychology on which this research rests is called "Personal Construct Theory". (Kelly 1955).

1.8 Personal Construct Theory was formulated by Kelly (1955), but has arguably gained prominence through the early advocacy of Bannister (1960, 1962). This summary is mainly drawn from Bannister and Fransella's exposition and review of Personal Construct Theory entitled "Inquiring Man" (1980). Where the technical language of the theory is used no reference is made to this source, but all other information or opinion cited from this source is referenced.

1.9 Personal Construct Theory is underpinned by a metaphor:- "Man can be conceived as if he is a scientist"; and by a philosophical concept coined by Kelly:- "Constructive Alternativism". Individuals, it is argued, construct theories about themselves, other people, and the world about them; test these theories and act on the basis of these theories as if they were scientists. The term "Constructive Alternativism" is very similar to Karl Popper's view of how real scientists work (Magee 1973). Popper argues that scientists construct theories which may in turn be falsified and replaced by further constructions. Thus Newtonian Physics has now been superceded by Einsteinian Physics. These theories are not reality

set in concrete, they are temporary human constructions, it is possible for two theories to exist explaining the same phenomena, for instance the Quantum and Wavelength theories of light. The same limitations may be placed on individual's personal theories. However the analogy perhaps should not be taken too far. As Peters (1974), seems to argue people may not mimic scientific tradition for instance, that of accepting nothing as true unless evidence is provided.

1.10 Bannister and Fransella (1980) make some radical claims for Personal Construct Theory. They argue that it is a total Psychology, potentially able to supercede and incorporate other cognitive, social and affective theories of Psychology. In other words it is a wide ranging and coherent theory. They also argue that it is reflexive, able to explain the behaviour of its proponents, unlike most other theories. They also argue that unlike many other theories Personal Construct Theory places the person, and the person's individual interpretation of the world at the very centre of Psychology, as Henderson (1960) does for nursing. (see Introduction).

1.11 Personal Construct Theory is explicitly stated at a high level of abstraction. It has a Fundamental Postulate and eleven Corollaries. As the research reported in this thesis was developed from the theory it is necessary to set these out below:-

1.12 The Fundamental Postulate is that "a person's processes are psychologically channelized by the ways in which they anticipate events". At the beginning of this chapter (paragraph 1.02) it was argued that man is a rule following organism as opposed to a rule obeying one. In this postulate it is being argued that these "rules" or "theories" are continually being checked for their usefulness in anticipating events. Thus the chess player of the earlier analogy is not only following the rules of chess which he can be virtually certain his opponent will also follow, he will also be trying to anticipate his opponent's moves in order to beat him to the punch. Different chess players will go about this in different ways just like different scientists will carry out their research differently. Differences in "Personality" may reflect the varying ways in which

individuals anticipate events. Melia (1982), using an informal interview tech nique to identify student nurses' (learner nurses undertaking a three year training) social constructions while placed on wards, recorded that their main preoccupation was to "fit in" - "to meet the expectations of those with whom they worked, especially those in authority." In effect she argued that they anticipated the behaviour which would lead to the ward sister giving them a good assessment at the end of their placement.

1.13 (1) The Construction Corollary is that "a person anticipates events by construing their replication." A patient who repeatedly responds unfavourably to nurses' requests to do something may be construed as being "difficult". It is the repetition of the behaviour which provides the confidence for the construct to be used in the anticipation of the patient's behaviour.

1.14 (2) The Individuality Corollary is that "persons differ from each other in their construction of events". Two nurses in the same ward faced with the "same" situation may interpret them totally differently. The adjective "same" is placed in inverted commas because the assumption is that no two individual's construct systems are the same. Similarly it cannot be assumed that because two people use the same verbal label, for instance "difficult" that they actually mean the same thing. The design of the main study reported in this thesis was partly based on this supposition. This contrasts with work by Worsley (1980) who also studied the stereotyping of patients by student nurses. He asked them to rate a large number of adjectives which he had ascertained were commonly used by nurses in describing patients, to indicate how they applied to a patient each student liked and to a patient she disliked. After a "factor analysis" of the results he concluded that the main factor that led a patient to be liked was whether they were friendly and cooperative, the main factor that led them to be disliked was whether they were experiencing emotional distress. Ballof and Becker (1967) however argue (in relation to learning curves) that aggregated results (as Worsley's were) do not permit predictions to be made about individuals. Individuals do not conform to an average. This is directly in line with the above Corollary. This has meant that

within the context of Personal Construct Theory general statements about groups of people are phrased at a high level of abstraction, in terms that have evolved from the theory. Thus in the main study of this research the hypotheses are concerned with whether change occurs or not in learner nurses' stereotyping, not with making a general statement about the average meaning of the stereotypes they use.

1.15 (3) The Organisation Corollary is that "each person characteristically evolves, for his own convenience in anticipating events, a construction system embracing ordinal relationships between constructs". This Corollary requires to be very carefully considered as it is the one on which the Repertory Grid, the measurement technique associated with Personal Construct Theory is mainly based. (This is described in part B). Three terms require to be closely looked at in this Corollary. First the terms "system" and relationships. These imply that Constructs are systematically related - that in Rowe's (1982) terms they have a "pattern". Patients who are construed by a nurse as "difficult" may also be construed as "lazy" and "dependent". The term "ordinal" adds another dimension to this. In the Concise Oxford Dictionary (Fowler and Fowler 1964) it is referred to as an adjective or a noun "defining a thing's position in a series". Constructs are thus ordered or arranged in a hierarchy. The construct "nurse" would thus be superordinate to the constructs "nursing officer", "sister" and "student nurse". In terms of logic this in turn means that the superordinate construct "nurse" implies all of the subordinate constructs, that they in turn imply the "superordinate construct", but do not imply each other. This sort of very simple system has a very important function: it arguably enables people to handle large amounts of information, and to compare different aspects of the world. Thus in the simple example above the construct "student nurse" might be compared to the construct "nursing officer" by working "up" through the construct "nurse". In the other simple example "dependent" might not directly imply "lazy", but might well do so indirectly if the construct "difficult" were superordinate to both of them.

1.16 (4) The Dichotomy Corollary is that a "A person's construction

system is composed of a fair number of dichotomous constructs." It is here being argued that logically speaking constructs must be bipolar. When a nurse affirms that someone is difficult she is also implying that he is not the opposite - say "easy". This does not mean that there cannot be shades between one pole and another - a patient may be scaled as slightly difficult.

1.17 (5) The Choice Corollary is that "persons choose for themselves the alternative in a dichotomised construct through which they anticipate the greater possibility for the elaboration of their system." In other words man tries to move from relative total chaos to greater understanding. Elaboration of the system may involve "definition" (confirming, in even greater detail aspects of experience which have already been fairly actively construed) or "extension" (reaching out to increase the range of the construct system by exploring new areas that are only very partially understood). Shaw points out that "if any change is to be made it must be made by the person himself, not merely on the objects around him." (Shaw 1980, p20)

1.18 (6) The Range Corollary is that "a construct is convenient for the anticipation of a finite range of events only." This is not just to equate a construct with a category which contains only a finite number of things etc; but to extend this finite membership to contrasting items. Thus the construct "patient" includes mental patients, out-patients, in-patients, renal patients, which implicitly are in contrast to hospital staff or people not receiving medical care. Cars and hospital equipment do not for instance contrast, but are outwith the construct's range of convenience.

1.19 (7) The Experience Corollary is that "a person's construction system varies as he or she successfully construes the replication of events." In other words people learn by experience, often building "up a more successfully predictive system by incorporating results of confirming and disconfirming instances." It is on the basis of this corollary that it was felt to be important in the Main study of this research to concentrate on studying the extent to which learner nurses changed or maintained their stereotypes of patients over a

period of time.

1.20 (8) The Modulation Corollary is that "the variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience the varients lie." Shaw (1980) interprets this Corollary as meaning that individual's constructs may vary in the extent to which they can incorporate new objects or events. Thus the construct "Cyanosed: Oxygenated" is part of a fairly precise theory concerning body metabolism and the function of blood. Its use outside the subject of physiology is unlikely. (However it must be emphasised that individuals may use this construct in a permeable manner).

1.21 (9) The Fragmentation Corollary is that "a person may successfully employ a variety of construction subsystems which are inferentially incompatible with each other". Bannister and Fransella (1980) argue that constructs that appear incompatible (in the context of an individual's construct system) may not be if they are subsumed to a superordinate construct that resolves incompatibility. Thus the folklore phrase "you have to be cruel to be kind" used in the nursing context might be subsumed to the construct pole "facilitate independence". The opposite of the phrase might be "if you are not cruel you may be unkind" and would possibly be subsumed to the contrast pole "encourage dependence".

1.22 (10) The Commonality Corollary is that "to the extent that one person employs a construction of experience which is similar to that employed by another, his or her processes are psychologically similar to those of the other person". In other words people are similar when they construe events in a similar way, which does not mean they must have experienced similar events (two individuals may construe imprisonment in different ways, one as penitence, the other as a trade school), or demonstrate the same behaviour (one brutal prison guard may construe his job as taking an eye for an eye, while another may see it as a way of preventing himself from being exploited by the prisoners). The crucial point to be considered here though is that "average" measurements are not measures of commonality of construing. Balloff and Becker's (1967) observation that aggregated

learning curves bear little relation to individuals' learning curves indicated that not only does the "average" do violence to the "Individuality Corollary" (see paragraph 1.13 above), but as a logical extension of this point means that no proper attempt has been made to delineate common ground from individual variation. To do this it is necessary to identify common patterns of construing, as for instance, Childs and Hedges (1980) do when using the Repertory Grid Technique in marital therapy.

1.23 (11) The Sociality Corollary is that "to the extent that one person construes the construction processes of another, he or she may play a role in a social process involving the other person". The key word would seem to be "involve". If an English teacher construes that a pupil's problem in analysing a poem is in the meaning of the words, while the pupil construes his problem as with scansion, the teacher is failing to construe the construction processes of the pupil accurately. If he then teaches the pupil under this misapprehension he will fail to relate to him. For the teacher to understand the pupil does not mean that he has to have the same construct system as him, simply an accurate theory about him. Similarly for a therapist to help a client it is arguably necessary for him to have an accurate theory about the client, for instance with regard to what the client means by "help". In lay terminology this corollary is arguing that empathy is a requirement of a meaningful relationship. Without empathy a person may just be doing something to another, not interacting with him. Wells (1980) observed that the verbal communication of nurses to patients in a ward for the elderly was mainly to do with the task at hand, in other words direction of the patient to do something in order for instance that an item of clothing might be put on. Wells argued that this indicated that the nurses were not attempting to find out individual patient's wishes (for instance what sort of skirt a patient might wish to put on), and were simply doing something to them.

1.24 It is important to emphasise that Personal Construct Theory is not just a theory of cognition. In the theory emotions are viewed as aspects of construct systems in a state of change thus dispensing with one of the traditional divisions in Psychology, that between

"affect" and "cognition". Emotions such as anxiety, hostility, guilt, threat, fear and aggression are formally defined. Guilt is for instance defined as "the awareness of dislodgement of the self from ones core role structure". Thus if a nurse sees herself as kind but ignores a patient's request that she sits with him while he smokes, she may experience guilt. As another example "Hostility" is defined as "the continued effort to extort validational evidence in favour of a type of social prediction which has already been recognised as a failure". This may happen when constructs, such as those which apply to a person's view of himself are invalidated. May and Kelly (1982) argue that nurses may feel hostile towards a patient who invalidates their belief that they should be able to help them. Such a patient (who is perceived as capable of benefiting from help) may be, as in the specific example they gave be treated with hostility and labelled as difficult. It may be argued that the nurses felt hostile, because they could not afford to lose the construction of themselves as being in the business of "helping". This view of emotions is seen by Bannister and Fransella (1980) as radical - emotions are not viewed as "drives". A person does not strive to avoid guilt, but to retain his personal (predictive) theory about himself. (As it was argued the nurses in the example above were). Similarly Murray-Parkes (1971) in his seminal paper on bereavement, argues that grief is due to the destruction of the individual's "world theory"; that the experience of grief only diminishes when the individual has reconstructed his theory and that his reconstruction occurs not in order to remove the grief, but in order to make it understandable.

Part B - The Repertory Grid Technique.

1.25 In conjunction with Personal Construct Theory, Kelly (1955) developed the Repertory Grid Technique. Unless it is indicated otherwise this general description is drawn from "A Manual for Repertory Grid Technique" by Fransella and Bannister (1977).

The Repertory Grid Technique is a means by which the organisation and meaning of an individual's personal construct systems may be understood. It is not a test. Unlike a test it can cope with idiographic data.

Unlike a test, consistency is not sought after, as one assumption of the Personal Construct Theory is that man may change his theory with experience; grids therefore should reflect change. Finally unlike a test, validity is primarily conceived of not as some external criterion, but in terms of whether a grid enhances understanding. A fuller consideration of these issues is given in Appendix A. The technique has three stages:-

a. Elicitation of elements and construct.
b. Scaling of constructs.
c. Analysis.

1.26 The actual form of technique which a researcher chooses may be affected by a number of factors, for instance:-

a. Time constraints on subjects from whom construct are elicited and scalings obtained.
b. The types of people providing constructs and scaling them. (Arguably mentally handicapped children would require a different approach to dons.)
c. Empirical evidence. Thus Slater (1977) reviews widely the extent to which different scaling methods provide individuals with the ability to make a flexible response.
d. Mathematical arguments. Thus as an example, there is a debate as to whether Product Moment Correlations distort Construct relationships. (Shaw 1980).
e. The computational facilities available to the researcher. Thus if a computer is available, the use it may be put to may depend on the available software.

The list above which is not exhaustive is intended to show that the precise version of the technique used by a worker will be designed to suit the task and circumstances.

1.27 As mentioned above the technique may be divided into three parts:-

1.28 Elicitation of elements and constructs.

Elements are formally defined as "the things or events which are abstracted by a person's use of a construct." In less obscure language it would be fair to say that they are the things or people a person is trying to make sense of. Traditionally elements were elicited by asking the interviewee to name a number of people they know who fit different role titles, such as father and best friend. The principal aim of this method is to obtain a representative sample of people a person knows. Elements however can be inanimate, or perhaps determined by the context of the research. (Whatever the context a representative sample requires to be chosen, or a reasonably accurate picture of the person's constructions may not be obtained.)

1.29 Constructs are elicited by asking a person to discriminate between elements. One means of doing this is to ask a person to say how two of three elements can be seen to be alike and thereby different from the third. Thus two construct poles are obtained in line with the Dichotomy Corollary (see paragraph 1.16) The "alike" pole is defined as the "emergent" one, and the "different" pole as the "implicit" one. A reasonable number of constructs may be obtained by doing this with different triadic combinations. Table i provides a list of constructs used by a student nurse in the Main study of this research. The first seven of these were elicited.

1.30 Scaling.

The elements are then scaled on the constructs. This may be done by getting the respondent to rank all the elements on each construct, from the element to which the emergent pole of the construct most applies to the element to which it least applies. Alternatively the respondent could rate how much each construct applied to each element. Table ii illustrates the raw grid which was obtained by the student nurse in the Main Study rating fifteen elements (patients) on fourteen constructs in Table i.

CONSTRUCTS

Construct

1	Independently minded: Lets you do anything.
2	Got to be careful with temperament: Always find them the same way.
3	Keep selves to selves: Talk to the other patients.
4	Don't see you as a nurse: See you as a nurse.
5	Easy going: Don't get on with everyone.
6	Timid: Forthcoming.
7	Can't be bothered with anything: pernickety.
8	Physically independent: Physically dependent.
9	Continent: Incontinent.
10	Light: Heavy.
11	Unhappy: Happy.
12	Pleasant: Unpleasant.
13	Physically ill: Physically well.
14	Confused: Mentally alert.

N.B. First Phrase = Emergent Pole
Second Phrase = Implicit Pole

A RAW GRID

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	ELEMENTS
1)	1	2	4	1	1	2	5	3	5	4	5	4	5	1	4	
2)	4	5	5	1	2	5	5	3	5	5	5	1	5	4	5	
3)	4	4	2	4	2	5	1	3	1	4	1	4	2	5	4	
4)	5	4	4	4	5	4	3	3	5	1	5	5	5	4	4	
5)	2	2	3	3	4	1	3	3	3	2	3	3	3	2	2	
6)	4	4	2	5	5	5	3	3	1	4	1	3	2	5	3	
7)	4	4	2	5	5	4	1	3	3	2	2	3	2	5	2	
8)	2	5	1	4	2	4	5	2	5	2	4	2	5	3	1	
9)	3	3	1	3	3	3	3	3	4	1	4	2	3	1	1	
10)	1	2	4	2	4	4	4	5	2	2	1	2	4	2	1	
11)	4	4	5	3	4	5	3	3	3	3	3	3	4	4	4	
12)	2	2	1	3	2	1	3	2	3	2	2	2	2	2	2	
13)	5	2	4	4	5	1	3	3	2	4	4	4	4	1	4	
14)	5	5	5	4	5	5	3	2	4	2	4	4	4	5	5	

CONSTRUCTS RATINGS ⟶

1.31 Analysis.

This may take two forms. Some workers prefer just to analyse the constructs in terms of content type. Thus Duck (1973) found that people used very few "psychological" constructs to describe new acquaintances. If this is the only intention then there is clearly no need for the elements to be scaled on the constructs. However in order to examine the way an individual relates constructs (see paragraph 1.15) a measure of sameness may be calculated with regard to all possible construct pairs (rows in Table ii), and also for all possible element pairs. The level of sameness between constructs was calculated with regard to the raw data in Table ii using the Pearson Product Moment Correlation. The matrix of correlations so derived is illustrated in Table iii. This is the measure of sameness used in this research. A basic assumption is that a high positive correlation between constructs will indicate that that when the individual construes a person in terms of the emergent pole of Construct "x", then he will most likely construe him also in terms of the emergent pole of construct "y". Thus in the above example (see Tables i and iii) "timid" is closely linked with "keep selves to selves". (R = 0.73) Conversely if there is a high negative correlation an emergent pole may be linked with an implicit pole. Thus both "timid" and "keep selves to selves" may be seen as closely linked to "lets you do anything". (R = -0.86 and -0.64 respectively).

1.32 As this measure is used extensively in this research it is necessary to consider it further. Drawing from Loveday (1966, pages 103 and 104) a correlation coefficient may be described geometrically as the constant which defines the slope of 'y' on 'x' and of 'x' on 'y' (y and x can be a pair of constructs) where a regression analysis has been performed on two independent variables (such as constructs). The scales of these variables require to be normalised so that the regression lines have common points of origin, otherwise the constant cannot be applied to both lines. It should be noted that when ranked data is used the respondent in effect does the normalisation himself. Where two regression lines coincide the correlation coefficient is "1", where they are they are orthogonal it is '0'. Normal arithmetical procedures cannot be performed on correlation coefficients because they are constants. They can however be

TABLE III

CONSTRUCT CORRELATION MATRIX DERIVED FROM RAW DATA IN TABLE II

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		0.46	-0.64	-0.08	0.22	-0.86	-0.91	0.19	0.08	0.05	-0.32	0.14	0.08	-0.42
2			-0.23	-0.21	-0.45	-0.41	-0.54	0.25	-0.04	-0.03	0.33	-0.24	0.33	0.04
3				-0.23	-0.71	0.73	0.53	-0.30	-0.49	-0.25	0.30	-0.34	-0.28	0.23
4					0.30	-0.25	0.29	0.17	0.46	-0.17	0.21	0.00	0.13	0.66
5						-0.35	-0.09	-0.01	0.29	0.28	-0.40	0.39	0.53	-0.20
6							0.72	-0.16	-0.27	0.06	0.26	-0.11	-0.14	0.21
7								-0.01	-0.10	-0.09	0.20	-0.01	0.20	0.45
8									0.67	0.06	-0.22	0.47	-0.46	-0.06
9										0.08	-0.31	0.39	-0.03	-0.07
10											0.24	-0.24	-0.14	-0.27
11												-0.77	-0.18	0.71
12													0.06	-0.36
13														-0.09
14														

converted into two forms of fixed ratio scales which do not present this problem:-

a. The cosine of the angle between the two regression lines is equal to a correlation coefficient, so that in turn the angular equivalent of a correlation coefficient may be obtained from the inverse cosine. (Opinion cited, Child 1970) Table iv illustrates the matrix of angular distances corresponding to Table iii (a "whole" matrix is illustrated in order that an argument in Chapter two may be made explicit).
b. By squaring the correlation coefficient the proportion of shared variance between two variables may be obtained. Fransella and Bannister (1977) multiply this by 100 to obtain what they call a "relationship score".

1.33 Shaw (1980) has criticised the correlation coefficient because she claims it measures linear relationship rather than sameness. Unfortunately the writer was restricted in terms of which computer program were available so the correlation coefficient had to be used. (The amount of data in grids makes it totally impractical to examine any number by hand!) This issue is examined slightly more fully in Appendix B.

1.34 Some workers are content to examine the correlation coefficient matrix (see Table iii) and glean what information from it they wish. However it is frequently useful to obtain an overview of the construct relationships, by looking at the main construct clusters or patterns of construing. In more formal language the data may be simplified by trying to account for the major part of the variability and thus enable the analysis to be displayed in an understandable and communicable way. The computer program that the writer had access to for analysing Repertory Grids was Slater's Ingrid 72 Principal Component Analysis Program. (Slater 1977).

1.35 Fig A illustrates the diagramatic summary of the first three extracted components that may be derived from the output of this program in order to summarise the construct relationships. The first component is a hypothetical vector which accounts for the maximum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0	63	-50	-85	77	-31	-24	79	85	87	-71	82	85	-65
2	63	0	-77	-78	-63	-66	-57	75	-87	-88	71	-76	71	87
3	-50	-77	0	-77	-44	43	58	-72	-60	-76	73	-70	-74	77
4	-85	-78	-77	0	73	-76	73	80	63	-80	78	90	82	48
5	77	-63	-44	73	0	-70	-85	-89	73	73	-66	67	58	-78
6	-31	-66	43	-76	-70	0	44	-81	-74	86	75	-83	-82	78
7	-24	-57	58	73	-85	44	0	-89	-84	-85	78	-89	79	63
8	79	75	-72	80	-89	-81	-89	0	48	87	-77	62	-62	-87
9	85	-87	-60	63	73	-74	-84	48	0	85	-72	67	-88	-86
10	87	-88	-76	-80	73	86	-85	87	85	0	76	-76	-82	-75
11	-71	71	73	78	-66	75	78	-77	-72	76	0	-39	-80	44
12	82	-76	-70	90	67	-83	-89	62	67	-76	-39	0	86	-69
13	85	71	-74	82	58	-82	79	-62	-88	-82	-80	86	0	-85
14	-65	87	77	48	-78	78	63	-87	-86	-75	44	-69	-85	0
TOTALS	884	959	851	983	916	889	908	988	972	1056	900	956	1014	942
	HI		HI	LI		HI	HI	LI	LI	LI	HI		LI	

HI = HIGH INTENSITY CONSTRUCTS.

LI = LOW INTENSITY CONSTRUCTS.

N.B. A negative angle = an obtuse angle, e.g. $-50^{\circ} = 130^{\circ}$

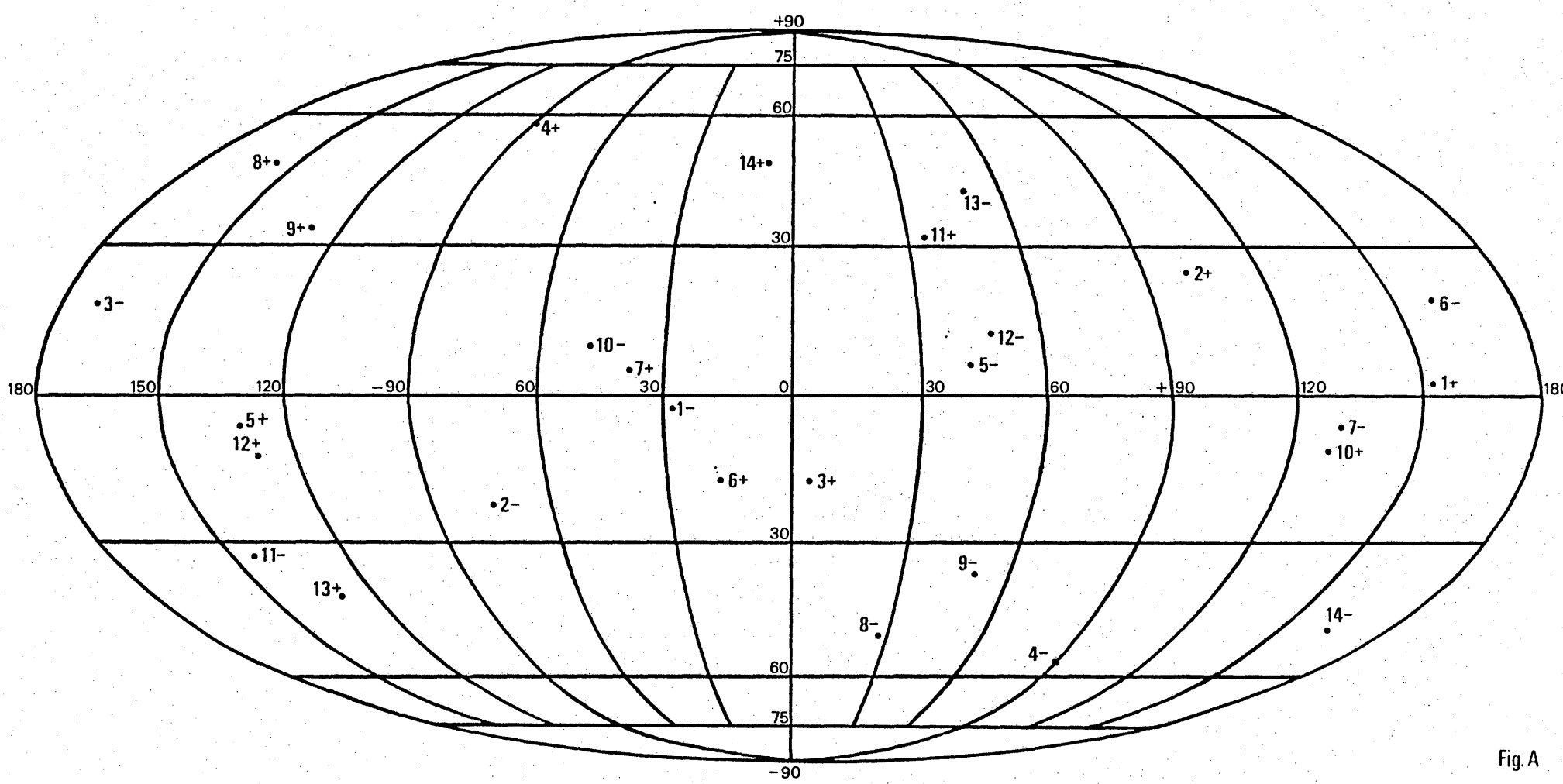

+90
75
60
30
0
30
60
75
-90
180
150
120
-90
60
30
0
30
60
+90
120
180
4+
8+
14+
9+
13-
11+
2+
3-
6-
10-
12-
7+
5-
1+
1-
5+
12+
7-
10+
6+
3+
2-
11-
9-
13+
8-
14-
4-

Fig. A

amount of variance, the second is orthogonal to this and accounts for the maximum remaining variance, and the third is orthogonal to both, and accounts for the further remaining amount of variance. The program indicates the position of the constructs on the surface of the globe in the form of polar co-ordinates. Constructs with heavy "loadings" cluster around the epicentres of the components. (These are co-ordinates 0;0 and 0:$\pm$ 180 for the first component, +90:0, and -90:0 for the second, and 0: + 90 and 0:-90 for the third. The first figure in each pair refers to the horizontal coordinate and the second figure to the vertical coordinate). Pope and Keen (1981) report that his method provides an accurate indication of construct relationships provided the first three components account for more than 80% variance. Unfortunately in this example they only account for 66% variance. For this reason the reader is advised only to take the constructs clustering around the first component at face value. Appendix C includes a fuller account of various ways that construct relationships may be summarised, including possibly better ways of doing it than the one illustrated. It will be recalled from the discussion above (paragraph 1.31) that where the implicit pole of the construct clusters with the emergent pole of another this indicates an inverse correlation. Thus on one pole of the first component the construct poles "keep selves to selves" (emergent). "lets you do anything" (implicit) and "timid" (emergent) may be seen to cluster together or form a pattern (see paragraph 1.15). The question of whether there is information regarding the hierarchy of relations (as opposed to a pattern being evident) will be considered in the next chapter. However the above pattern of constructs does seem to indicate that in line with principles enunciated at the beginning of the chapter that the technique does provide a means of understanding an individual's view of the world - of the rules she is following. (see paragraphs 1.2 and 1.11). It is important though to point out that while the above discussion has concentrated on constructs that cluster together with relatively high correlations, it may not be assumed that where an individual relates constructs less closely that this is not of psychological significance.

1.36 Finally it should be pointed out that the above description regarding the summary of construct relations can on the whole be

applied to element relations. (For instance in Ingrid 72, cosines indicate the extent of similarity between them).

CHAPTER TWO

STEREOTYPING - LITERATURE REVIEW

2.1 The Concise Oxford Dictionary (Fowler and Fowler, 1964) defines a stereotype as a "fixed mental impression". Stewart, Powell and Chetwynd in a review of the Psychological literature on stereotyping define a stereotype more extensively as where "a single characteristic or label serves to elicit a set of expectations or attributes". (Stewart, Powell and Chetwynd, 1979, p2).

2.2 This literature review is concerned with two aspects of stereotyping - individuals' personal use of stereotypes viewed from the theoretical base of personal Construct Theory (which seems to have monopolised the research in this area), and aspects of nursing research, which give insight into the possible importance of this approach within nursing.

2.3 Worsley (1980) in a study of student nurses' stereotyping of patients, argued that Kelly's constructs were stereotypes, reflecting an argument also put forward by Stewart et al (1979) that stereotypes are required in order that people can make sense of the world. The language used in Personal Construct Theory to describe constructs does give some basis for this (technical definitions are drawn from Bannister and Fransella 1980 and 1977). Three different types of constructs are positted:-

2.4 (1) Pre - emptive constructs. Formally this may be defined "as a construct which pre - empts its elements for membership in its own realm." - "If this is a ball it is nothing but a ball". It is not even possible to say whether it is round or not.

2.5 (2) Constellatory constructs. Formally this may be defined "as a construct which fixes the other realm memberships of its elements." For instance a patient might be perceived as dependent, lazy, uncooperative, and unhappy - the sort of generalised "package deal" associated with stereotyping. In parallel with Stewart et al's (1979) definition (above) one label elicits several others. Constellatory constructs may also be formally said to be "tightly"

related to other constructs. (The other members of the "package deal".) Tight relationships may be said to indicate a high level of prediction, in the same manner that a high correlation or its analogue of a tight angle indicates that there is a strong likelihood of a value of "x" predicting a value of "y". It should also be noted in passing that nurse researchers have in the past invited nurses to stereotype their patients. Wells (1980) and Fielding (1980) utilised the Kogan Old People Scale (1959) to measure whether nurses had positive or negative attitudes towards old people (and by implication their patients). The scale utilises seventeen contrasting positive and negative pairs of generalisations about the elderly. For instance - "Most old people are glad to be friendly" (positive). These descriptions are rated on a seven point scale. The paradox is that any one refusing to generalise would end up with a score indicating that they were not positive towards the elderly.

2.6 (3) Propositional Constructs. These may be formally defined as carrying no implications regarding the other realm memberships of its elements. A patient might be perceived by a nurse as if he were lazy, but from several different unrelated viewpoints as well. Propositional constructs may be regarded as being at the other end of a continuum from constellatory ones, in other words "loose". For Kelly constructs which were loosely related carried a low level of prediction. (In an extreme case none at all.)

2.7 It should be noted that constructs have been described above pre-emptively i.e. as nothing but "constellatory", when it is possible that this may not be permanent. For this reason in the rest of the text they are described as being used in a Constellatory or Propositional Mode. (Fransella and Bannister 1977, opinion cited).

2.8 At first sight it would seem that the above text justified Worsley's (1980) assumption. "Stereotyping" would seem to be necessary for individuals to make sense of the world - in other words to have an adequately predictive theory. However it may be argued that different contexts required different degrees of prediction. A theory of how the internal combustion engine works would require a high level of prediction, while a theory about the social needs of

human beings might be better with a less highly predictive theory given the variability of the subject. It will also be recalled that the "Choice Corollary" (paragraph 1.17) implies that individuals in the course of experience define and extend their construct systems - in other words the crucial question is not whether individuals use stereotypes, but whether they are able to modify them with experience. In the main study this possibility was examined with regard to learner nurses. Fransella and Bannister suggest that one aspect of definition and extension is that "we loosen and tighten our thinking in a cyclic manner. Our aim is first of all to gain a perspective and then become concrete enough to define our themes operationally and so regain a new perspective." (Fransella and Bannister, 1977, p61). If Worsley (1980) had suggested that the theory was ideally suited to the study of individuals' construction of stereotypes and whether these change with experience he would have been more accurate. The Personal Construct Theory Literature concentrates on two approaches to the issue of stereotyping:-

2.9 Firstly, the extent to which individuals' construct systems show a general tendency towards being tight or loose. This is in essence a typological approach where the "meaning" of the stereotypes may be ignored. The principal measure used is called "Intensity" (Bannister and Fransella 1965) which is derived by summing all the Relationship scores in a grid (see paragraph 1.32). The higher the score the tighter the overall construct relations. Chetwynd (1974) found that the percentage variance accounted for by the first component of a Principal Component Analysis correlates at the level of 0.98 with this measure. Thus Intensity seems to correspond nearly completely to the explanatory power of the first component. Others have developed other methods for analysing the structure of grids. Thus Bieri (1966) developed a measure of "Cognitive Complexity" which in fact appears to be a measure of how much a subject's constructs distinguished between elements. (opinion cited Chetwynd 1977). If an individual shows a tendency to stereotype (i.e. construe tightly) it might reasonably be expected that they would not differentiate finely between people (elements). Formally an inverse correlation would be expected between "Intensity" and "Cognitive Complexity". Unfortunately Honess (1976) found that the two measures did not

correlate at all. While this may be because the two measures are computed differently it should be noted that Bieri found that the more cognitively complex a person was the more able he was to predict the behaviour of others, though other studies (Leventhal (1961), Sechrest and Jackson (1961)), while showing a tendency towards this have not found a statistically significant relationship. There appears to be no similar research with regard to tight and loose construers. Caution should be sounded in that there is an ongoing debate (see Pope and Keen 1981) about what precisely the above terms, as well as other measures of grid structure mean psychologically. One problem that the writer has identified with Bannister's Intensity measure is that it may as a general measure obscure the fact that within an individual's construct system some constructs may be used in the Constellatory mode and some in the Propositional mode.

2.10 Possibly reflecting this misgiving a second approach has been to identify the constructs that individuals have used in the Constellatory mode and those that they have used in the Propositional Mode. Measures from the Repertory Grid Technique have been quite easy to develop as a continuum between tight and loose. Two have been used:-

2.11 (1) Constellatory constructs have been identified as those with the five highest loadings on the Principal Component in a Principal Component Analysis (Emerson 1982). Thus operationally the constructs used in the Constellatory mode were those accounting for the largest amount of variance. Conversely constructs used in the Propositional mode were identified as those with the five highest residuals on the third component (residuals measuring the amount of unexplained variance) of a Principal Component Analysis (Emerson 1982). Levy (1956) used a broadly similar measure. Table v, illustrates how the above description could be applied to the example data in Chapter 1.

2.12 (2) An alternative measure used by Mair and Boyd (1967) and by Emerson 1982 is to identify constructs with high and low 'intensity'. (Obtained by summing the relationship scores of each construct in the grid). While neither writer directly equated high and low intensity

TABLE V

DETERMINATION OF CONSTRUCTS USED IN THE CONSTELLATORY AND PROPOSITIONAL MODE

Construct	1st Component Loadings	3rd Component Residuals
1	-0.9012"C"	0.1384
2	-0.4942	0.2633
3	0.8279"C"	0.2791
4	0.3488	0.2767
5	-0.1747	0.5412"P"
6	0.8167"C"	0.2832
7	0.8885"C"	0.1074
8	-0.4610	0.4065"P"
9	-0.2763	0.6057"P"
10	0.1920	0.8959"P"
11	0.5708	0.3090
12	-0.1935	0.2160
13	-0.0325	0.4147"P"
14	0.5845"C"	0.3661

"C" = constructs used in the Constellatory Mode.

"P" = Constructs used in the Propositional Mode

with the use of constructs in the Constellatory and Propositional modes Emerson 1982 reported that the high intensity measure had a communality with the measure of Constellatoriness of 88.2% and with regard to Propositionality and low intensity this was 63.6%. Also in his research the two different measures successfully predicted the same result. Table iv illustrates the five highest and the five lowest intensity scores as derived from the example data, using instead of Relationship scores, the angular analogues of correlations. (This means in effect that high intensity will be indicated by low totals, as opposed to the other way round with Relationship scores). It will be noted that there was 80% agreement between those identified as high intensity and those identified as being in the Constellatory mode, and that 80% agreement between the two measures at the other end of the continuum. In the main study the measure derived from Table iv is used as an indicator of the extent learner nurses used certain constructs stereotypically.

2.13 Work involving these measures has concentrated on the susceptibility of constructs at either end of the continuum to change. This stems from the suggestion that constructs which are tightly related to other constucts and are thus more important to the predictive capacity of an individual's construct system are more difficult for that individual to change - to do so may threaten chaos. It is positted that this change may be of two possible types:-

a. The position of an element on a given construct may vary over time. One means of measuring this is to score the differences in ratings between the same elements rated on the same construct at two different periods of times. Table vi illustrates the way this may be done.
b. A construct may vary in its relationship to other constructs within the individuals system over time. A measure of consistency in relationships may be obtained by rank ordering the correlations between the target constuct and all the other constructs and calculating a Spearman Rho correlation (see Appendix D). Table vii illustrates this.

TABLE VI(i)

Ratings on Element "A" on constucts with five highest loadings on first component (See Table V)

Construct	First Interview	Second Interview	Difference
1	1	1	0
6	4	5	1
7	4	4	0
3	4	4	0
14	5	5	0
			-
		Total	1

VI(ii)

Ratings of Element "A" on constructs with five highest residuals on third component (See Table V)

Construct	First Interview	Second Interview	Difference
10	1	2	1
9	3	3	0
5	2	2	0
13	5	3	2
8	2	2	0
			-
		Total	3

TABLE VII

CALCULATION OF CONSTRUCT CONSISTENCY

Correlations of Construct (1), First Grid with all other constructs in the Grid			Correlations of Construct (1) Second Grid with all other constructs in the Grid		
Construct		Rank	Construct		Rank
2	0.46	1	2	0.54	1
3	-0.64	11	3	-0.78	12
4	-0.08	8	4	-0.11	9
5	0.22	2	5	-0.09	8
6	-0.86	12	6	-0.71	11
7	-0.91	13	7	-0.86	13
8	0.19	3	8	0.35	3
9	0.08	5.5	9	0.25	4
10	0.05	7	10	0.02	7
11	-0.32	9	11	0.40	2
12	0.14	4	12	0.11	6
13	0.08	5.5	13	0.17	5
14	-0.42	10	14	-0.44	10

Spearman RHO = 0.74

N.B. Correlations are ranked from highest positive to highest negative

2.14 The research into this question to date is rather contradictory, possibly because of different research designs. Levy (1956) for instance investigated the effect of invalidation of individuals' construct systems. He found that significant greater element reconstruction took place under conditions of high invalidation with regard to constructs used in the constellatory mode, and a non significant converse trend under conditions of low invalidation. However it should be noted that this research was very artificial, subjects were asked to rate two pictures of people (the elements) in terms of constructs obtained through the conventional "role" method. Mair and Boyd (1967) reported no difference in stability between high and low constructs over a period of two weeks. Emerson (1982) broadly confirmed the hypothesis in terms of both element consistency and construct relationship consistency using as subjects student Psychiatric nurses with a gap between provision of the two grids of seven months. It should be noted that all these studies examined consistency and change intra-personally. For some individuals it may well have been possible for them to have related constructs used in the Constellatory mode with other constructs inconsistently compared with their peers but relatively more consistently than constructs they used in the Propositional mode.

2.15 Seemingly strong evidence for the core hypothesis has been provided by Hinkle (1965, cited by Fransella and Bannister 1977). using a radically different grid technique called the "implication grid". This uses only one element - "the self." Individuals were asked whether if they were changed with regard to one construct, what other constructs would also change. Having asked this question for each construct Hinkle was able to rank order constructs in terms of "implication". Hinkle also devised a technique for assessing which construct individuals would be least willing to change, and found that the constructs with the greatest implication were least likely to be changed. The fact that only one element was used might make this example seem far removed from the concern of this study - the stereotyping of others.

2.16 However Hinkle's "implication" approach serves to identify a possible weakness in the Grid technique. It will be recalled that

one aspect of the "Organisation Corollary" (see paragraph 1.15) was that constructs were ordinally related. Hinkle's argument is that constructs which are superordinate will be difficult to change. The line of argument pursued by for instance Emerson (1982) is that "Constellatory" constructs will be difficult to change. Both appoaches assume that this will be because of the loss of predictive ability. The first question is whether the two terms mean the same thing. In concrete terms are constructs used in the Constellatory mode as identified by the methods out lined above the same as Hinkle's superordinate constucts? Research by Bannister and Salmon (1967), cited by Bannister and Fransella (1977) indicates that quantitative measures that determine the extent to which constructs are used in the Constellatory mode and, measures such as Hinkle's that indicate "line of thought" do not correlate. In more general terms this would indicate that Repertory Grids which indicate degree of relationship between constructs do not provide a good summary of ordinal relationships. Moreover it would seem reasonable to consider whether "tightness" and "hierarchy" should not in fact be considered as logically distinct aspects of construct relationships. In the literature, despite Bannister and Salmon's work, the two sets of terminology are used interchangeably. Fransella and Bannister (1977) in reporting it still suggest that measures of degree of relationship are measures of superordinacy, and Emerson (1982) cites Hinkle's work in support of his hypothesis regarding constructs used in the Constellatory mode. In the research reported in this thesis mainly quantitative measures were used. This as might be expected from the above discussion provided some problems in the final assessment of the results. (see paragraphs 6.5 and 6.6).

2.17 There are two areas of study within Personal Construct Theory, but outwith the Constellatory: Propositional theme which have bearing on the studying of stereotypes:-

2.18 (1) Content Analysis. Duck (1973) studied the development of friendship between undergraduates, from the point of not knowing each other to the situation with regard to their friendship six months later. He noted that at first individuals were very reluctant to utilise "Psychological" constructs with regard to new acquaintance

but were more willing to do so later on. He suggested that indicated that a process of "individuation" (i.e. the opposite of stereotyping) took place, as workable theories about the new acquaintances were developed. Duck did not investigate this assumption in terms of grid structure (in fact he seems to generally ignore the organisation corollary of the theory), and it may thus be preferable to argue that individuals felt that they had no evidence with which to form a "psychological" theory about the acquaintances. It is however possible to study both "content" and structure at the same time. For instance Lifshitz (1974) did compare the construct systems of trainee social workers compared with those of experienced counterparts. She found that for the former group the construct with the heaviest loading on the first factor (i.e. though she does not use the terminology, in line with the above discussion the construct used in the most Constellatory mode) was most likely to be "concrete" e.g. age, sex or profession, while for the latter group, the most prevalent categories were intrapersonal or interpersonal characteristics and abstract descriptions of task performance. (Examples were self awareness, wish to help others, or diligence respectively.) Unfortunately this study while it purported to be examining the effect of training (as this study does) the role construct system was used with regard to obtaining element, rather than a system which utilised the clients the subjects' knew. One other study would seem of relevance in this section of the discussion. Caine and Smail (1969) report that psychiatric nurses and doctors who construed their patients using more "Psychological" constructs also preferred a therapeutic regime in treating their patients (i.e. one in which there was emphasis on building up personal relationships with patients and allowing them autonomy) as opposed to the traditional regime of treatment by physical intervention. This would go along with the other studies cited in this paragraph which seem to indicate that to have practical relevance it will be important to examine both the extent to which individual learner nurses stereotype patients, and the content of these stereotypes.

2.19 This is supported by work such as that of Menzies (1960) Wells (1980) and Williams (1971) that nurses often view their patients in

terms of the tasks that they require and their condition. Menzies (1960) argued that this acted as a defence against the pain of empathy. Wells (1980) did not seem to proffer an explanation, but in parallel with Menzies (1960) assumed that it meant that nurses were not attempting to understand the experience of the patients. Williams (1971) argued that technical terms served to delineate nursing as a profession, and also argued that such terminology was divorced from the experience of the patient. She also argued (in a manner similar to Goffman 1968, see paragraph 1.6) that when patients had passed from the acute phase, their behaviour was described in stereotypic language e.g. "Cooperative: Uncooperative" and "Complaining:Uncomplaining".

2.20 With specific regard to learner nurses there does seem to be evidence that they view their learning experience in terms only of the acquisition of technical skills. Fretwell (1980) reports that student nurses found long term wards (where there was little technical input) as just routine - in other words there was nothing to learn. Melia (1982) reported that student nurses did not regard social relationships with patients as real nursing.

2.21 (2) Measuring Empathy. An underlying assumption in the Introduction was that individuals who stereotyped patients, would be less able to understand their needs. In the preceding paragraphs it has also been argued that the type of language and constructions that nurses use with regard to patients reflects the extent they understand them. To test this a measure of empathy is required or in Personal Construct Theory terms a measure of the extent one individual construes the construction processes of another. (see the Sociality Corollary, paragraph 1.23) Watson (1970) on the basis of this view got a doctor to predict a patient's grid on four separate occasions and compared the guesses with the real thing in order to outline areas of understanding and misunderstanding. Rowe (1971) used the same method within a similar context. This type of measurement of empathy seems to be preferable to techniques in which independent observers or the helpee judge the empathetic quality of the helper. For instance Steller (1977), using a method in which the helpee was the judge, was puzzled as to why a "nurse who successfully

interupts the patient as frequently as 1.3 times per minute of the patient's speaking time, and who speaks during more than half the interview can still be perceived as highly empathetic." It may well be that the nurse successfully construed the role the patient expected her to play. A direct measure of empathy might have indicated whether this was so.

Conclusion

2.22 Two issues may be seen to predominate in the above discussion:-

a. Individuals may find constructs that they use stereotypically difficult to change.
b. Individuals may differ in the "types" of constructs they use. The type of constructs an individual uses may reflect the extent to which she is empathising with those she is construing.

2.23 These two issues may be interlinked in that it may be suggested that if a learner nurse uses "Concrete" or "Objective" constructs (such as those relating to task or condition) in the Constellatory mode, as opposed to "Psychological" constructs, she may not only find it difficult to empathise with patients, but may find it difficult to change her constructions of them while on a ward placement. This was the question which the first Exploratory study was designed to investigate.

CHAPTER THREE

EXPLORATORY STUDIES

Overview

3.1 The two Exploratory studies outlined below served several purposes. They enabled the writer to gain practice in the elicitation of grids from others. They enabled him to identify pitfalls in design. They enabled him to actually use the concepts of Personal Construct Theory. As will become apparent a lot of learning was required.

3.2 Both Exploratory Studies were carried out in two hospitals in a West of Scotland Health District. Permission to approach patients (in the First Exploratory Study) was obtained from the consultant geriatrician (who in turned cleared this with the chairman of the ethics committee). Permission to approach learner nurses was obtained from both the nurse managers and the Director of Nurse Education.

Part A

First Exploratory Study

3.3 The first Exploratory study was abandoned soon after it was started as one element of the design proved totally unrealistic. A brief résumé of the study follows.

Hypothesis

3.4 It was hypothesised that learner nurses who used more "psychological" constructs in contrast to "objective" ones in their construction of patients would also be more empathetic to them.

Design

3.5 This had three parts:-

(1) Patients in a ward for elderly women were to be asked to complete

a grid using everyday situations in the ward as elements. These were provided and included such situations as having a bath, visiting time, lunch time, getting up. They were asked how their feelings were alike in two such situations and different from the third. The patients were to be provided with the situations written on separate cardboard cards. From a list of eight such situations an 8 * 8 grid was to be formed by the patients ranking the eight elements on eight elicited constructs. Each elicited construct was to be written on a separate cardboard card, and the patients were to be asked to sort the eight element cards in their rank order. There was some reason to expect that the use of situations instead of people as elements would work. For instance Ravenette (1975) had done this in a study of delinquent boys, and Fransella (1972) had done it in a study of stutterers. The elderly patients were approached personally. It was explained that I wished from them a description of how it felt to live on the ward. While they were to be assured of complete confidentiality regarding anything they said about individuals on the ward it was explained that the descriptions of their feelings regarding certain situations would be communicated to learner nurses. (See below).

3.6 (2) The intention was to pair learner nurses randomly with individual patients and then to "predict" how the paired patient would rank the "situations" above on each of the constructs the patient had provided. By comparison of the patient's grid with the learner nurse's prediction of it, it was hoped to obtain a measure of empathy. Moreover it was the intention to obtain both the patient's grid and the nurse's prediction of it early on in the latter's period on the ward, and to repeat this procedure towards the end of her placement. Thus it was hoped to also obtain a measure of change in empathy.

3.7 (3) In the same session as they completed the grid above learner nurses were also to be asked to provide a grid summarising their construction of their patients. They were first to be asked to list the ten patients they knew best in the ward. These comprised the elements. Constructs were then to be elicited using the triadic method (see paragraph 1.29). The intention was then to carry out a

content analysis such as that employed by McPherson and Gray (1976). Constructs were to be categorised as to whether they were Psychological (pertaining to the personality of the patient) or Objective (pertaining to their physical characteristics or to the physical nursing care that they required). It was then intended to examine the cohort of nurse - patient pairs as a whole for any relationship between the number of "Psychological" constructs used by the learner nurses and the degree of empathy. Learner nurses were also to be asked to rank the elements on the constructs in order to examine the construct relationships, and in particular to examine whether the category of construct used in the Constellatory mode affected the learner's ability to empathise with the patient.

3.8 The third part of the design did prove feasible, and one of the learners who did complete this section provided the idea for reformulating the initial aims of the research. She asked at the beginning of the interview whether she was to provide constructs of patients "as people" or "as patients". In conversation it seemed that by "as people" she meant their personality, while the "as patients" phrase pertained to their condition, and the type of care they needed. This seemed to reflect the division between "Psychological" and "Objective" constructs identified as being of potential importance in the understanding of stereotyping in the last chapter. However it also served to focus the writer's thinking on one particular question. One of the questions being investigated in the failed study above was the extent to which the category type of the constructs used by learner nurses in the Constellatory mode affected their ability to empathise. This may have been a simplistic question, as it would not only have been important to categorise the constructs used in this mode, but to identify the categories of constructs in the "package deals" (see paragraph 2.5) associated with them. Arguably it might well make a difference to a learner's understanding of a patient if she used a stereotypic package in which "Psychological" constructs were stongly related to an "Objective" construct used in the Constellatory mode. It was thus decided to leave the question of "empathy" in abeyance, and first concentrate on finding whether learner nurses did actually construct theories about their patients on the lines outlined above, or as the learner nurse

above seemed to imply the two categories of construct formed different subsystems within individual learner nurses' construct systems.

Part B

Second Exploratory Study

3.9 **Aim:-**

To investigate the presence or absence of a relationship between learners' construction of patients as patients, and their construction of them as people.

3.10 **Sample of Learners:-**

a. Nine "student" nurses (learner nurses on a three year training program) allocated to two geriatric wards in one hospital. One ward was used for male patients, the other for female patients.
b. One "pupil" nurse (a learner nurse on a two year training program) allocated to a female long term geriatric ward in another hospital.

3.11 Five nurses were unable to complete the second half of the study and are not included in the above.

3.12 **Method:-**

Nurses were seen indvidually by the writer approximately four weeks after they had arrived on the ward, and at the end of the experience (in other words in the seventh or eighth week). A gap of four weeks was left before interviewing them as the small number of interviews conducted in the First Pilot Study had indicated that there was difficulty in providing constructs if they had known the patients for a shorter length of time. (Patients stayed in these wards for some time so there was no possibility of a large turnover of patients.)

3.13 On their arrival I explained to them that:-

a. The writer wished to hear their personal view of the patients in their present ward.
b. That any information they gave him was totally confidential.

3.14 These points reiterated those made in a prior letter of introduction asking their permission for me to interview them. Finally it was emphasised that what they were going to be asked to do was not a test. (In other words they were not being assessed.)

3.15 The learner nurse being interviewed was then asked to provide the names of the ten patients she felt she knew best on the ward. These names having been elicited, and recorded, they were written down on individual blank cards on the other side of which was a letter. (Each patient was allocated a letter from A to J.)

3.16 Two grids were obtained from each nurse in one session; a patients as people grid, and a patients as patients grid. Half the nurses provided the former first, the other half the latter.

3.17 The preliminary instructions for elicitation of the constructs differed, but otherwise the production of both grids entailed the same procedure. The preliminary instructions for the "patients as patients" grid were:-

3.18 "I am going to provide you with three patients' names written on these cards. I wish you to tell me in what way two of the patients are alike and different from the third. By "as patients" I mean in terms of characteristics which affect their nursing care."

3.19 The Preliminary instructions for the "patients as people" grid were:-

"I am going to provide you with three patient's names written on these cards. I wish you to tell me in what way two of the patients are alike as people in an important way, and different from the third."

3.20 In all ten triads were provided for each grid. (Normally the same ten for each grid.) These were precoded in terms of the letters on the obverse side of the cards so that ten different combinations were presented. The constructs elicited were recorded in writing. It was attempted to obtain the implicit pole by asking in what way

the third patient was different.

3.21 Ten different constructs having been obtained the second stage of the procedure was started. All the cards were laid on the table in front of the learner nurse, with the names of the patients face up. Then the learner nurse was asked to say which patient was best described by the first construct. On her reply the card was removed and the code letter noted. Then she was asked to whom of the remainder it most applied and so on till all the cards were removed. Then having shuffled the cards to prevent an "order" effect, the same procedure was gone through for the second construct, and so on till a 10 * 10 matrix was formed. This is the method recommended by Fransella and Bannister (1977). However it should be noted that it in effect means that one does not know whether the respondent has ranked through to the implicit pole.

3.22 The second grid in a session was commenced after five minute break, usually taken up with general discussion about whether the nurse was enjoying her training.

3.23 The second interview was a replica of the first. In eight out of ten cases the same patients were used. In one case, one new name had to be used as a patient had died. In another a whole new list was used due to the writer leaving the original at the work base.

3.24 For the purpose of displaying and analysing the results the learner nurses were coded from 1 to 10. The constructs that they provided in both interviews are recorded in Appendix E.

3.25 **Procedural Problems:-**

Procedural problems may be divided into two sections, those to do with elicitation and those to do with ranking. Problems with elicitation were as follows:-

3.26 (1) Several of the nurses found it difficult to provide an implicit pole which could be applied to the odd one out of the triad. Thus often constructs had to be recorded without the implicit pole.

This was not picked up as a serious problem at the time because it did not affect the ranking procedure. However it meant that in examination of construct relationships little meaning could be drawn from the presence of implicit poles in particular patterns.

3.27 (2) Sometimes a learner nurse would find it easier with respect to a particular triad to say how one patient was unlike the other two, instead of how two were alike. This was allowed. The triadic elicitation technique is only a heuristic and is not set in gold. Moreover it was possible that this meant the learner nurse was producing a personally relevant construct. It was thought particularly important in this context (though also in the elicitation procedure as a whole) to ensure that constructs elicited were not going to result in a lopsided ranking. For instance a learner provided the construct "Blind:Can see" (the implicit pole in this case referring to the two patients that were alike). The problem was that it was transpired that all the other patients could see, and the nurse did not know enough about their vision to rank them. Thus when the elements were ranked on the construct there were nine ties. One similar problem was that a provided construct might be outside the range of convenience of a small number of the elements. One construct, "Incontinent: Continent" provided problems in this regard as it was not applicable (for some nurses) to a patient with a urinary catheter. This having been identified the learner nurse was advised to make a neutral judgement by placing that particular element in the middle of the ranking. As only ten patients were being ranked this was not an ideal solution as there was not a true centre point. It may also have been an invalid one as if the learner nurse was ranking from most to least applicable (as they had indeed been instructed to) the neutral point might just as arguably be identified as being at the bottom of the ranking. Finally it should be noted that the solution meant that the writer was imposing his construct system on the learner nurse. The two problems described above may have arguably limited the sort of "Objective" constructs that might have been employed. Thus constructs relating to pathology might have produced difficulties. For instance if the construct "Stable diabetic:Unstable diabetic" had been used many of the elements might have been outwith the

construct's "range of convenience." Alternatively if the construct "Diabetic: Not a diabetic" had been used lopsided ranking might have resulted. Strangely the writer did not in fact have to limit the use of such constructs, as they were rarely elicited. Despite this, it is possible to argue that the Repertory Grid Technique might not in fact have been suitable for use in understanding the application of many Objective constructs.

3.28 (3) The learner nurses quite often repeated constructs which they had already provided. This was not prohibited, but after the repetition was recorded the learner nurse was then asked if she "could think of another way in which two of the patients were alike ....." The aim of this was to prevent anxiety in the learner nurse about not being able to provide enough constructs. If this procedure did not work the learner nurse was asked in what way two of the patients she said were alike were different from each other. This normally worked, but if it failed the learner nurse was then asked to simply talk about one of the patients, and normally a new construct would arise. Again this may be justified in so far as flexibility is permissible in construct elicitation. However it may be criticised in that repetition of constructs may signal that the individual has exhausted her construct pool. Continuing to elicit after this may simply result in synonyms or a lot of subordinate constructs and may give a misleading view of the overall pattern of construct relationships. Repetition was allowed between grids as there was always the possibility that two identical constructs would have different meanings in different contexts.

3.29 (4) Some learner nurses used a stream of consciousness technique, sometimes listing in one breath three or four different constructs. The one that was said first, and had not been repeated was recorded. When this occurred it was sometimes very difficult to obtain implicit poles, as there was no clear indication of how a construct allowed the nurse to discriminate between the patients. In one particular case Learner Nurse 4 in the second interview, this was not even attempted as she seemed to be in a terrible hurry. In this respect the ambiguity as to whether ranking meant that constructs were scaled from the emergent pole to the implicit pole did at least

mean that these constructs could be scaled.

3.30 (5) It was necessary to be constantly on the watch for ambiguity, for instance the construct "Independent:Dependent". For some this was a "state of mind", and not necessarily related to physical ability. It was ncessary to probe to clarify such terms.

3.31 Two problems with ranking have already been mentioned:-

a. The method of ranking used does not allow any assumptions about the character of the implicit construct pole.
b. Ranking poses problems for the respondent with regard to elements, which are outside the range of convenience of a construct.

3.32 The other problem encountered was the some learner nurses found it difficult to rank discretely, even if constructs were fully applicable to the elements. Thus they might say that the four remaining patients were last equal. Sometimes this might be solved by asking the learner nurse to rank the remaining patients from the least to most applicable. However this did not always work and ties had to be recorded.

Analysis

3.33 The principal aim of the analysis was to ascertain whether the two types of grids elicited, "patients as people" and "patients as patients" reflected for some or all of the learner nurses separate construct sub-systems. The analysis had two parts:-

a. Analysis of content. The aim of this was to ascertain whether the assumption that the phrases "patients as patients" and "patients as people" would elicit different types of constructs could be borne out.
b. Analysis of construct relationships.

Content Analysis

3.34 Constructs elicited from the learner nurses were categorised as

"Psychological" or "Objective" following McPherson and Grey (1976). McPherson and Grey (1976) defined "Psychological" constructs as "referring to personality, emotions or the interpersonal interactions of people." They defined "Objective" constructs contrastingly as "descriptive of more directly observable, less inferential features such as physical appearance." McPherson and Gray (1976) used two independent scorers for the categorisation, and resolved disagreement in the direction which did not favour their hypothesis. However as this was an Exploratory study, and it was not clear that this particular system of categorisation was suitable for the social context of the research, the writer did the categorisation himself.

3.35 Certain problems with the categorisation were identified. One was the regular use by the learner nurses of constructs relating to dependency and helplessness, for instance "Can eat their meals alright:Have to give everything to her" or "Dependent on nurses:Independent". Such constructs were taken to be externally observable, though arguably a construct such as the latter might be seen also as an aspect of personality. Constructs relating to clinical condition and treatment were included in the "Objective" category. There was some problem in deciding which category to place constructs relating to patients' cognitive orientation, for instance "Ask about things on the news:Unaware of everything going on" and "Confused:Not Confused." These arguably describe both a clinical condition and personality. The latter was taken to be the case as it was assumed that in order to rank such constructs a respondent would have had to imagine to some extent how different patients perceived the world. The same decision was made about constructs relating to communication such as "Can start a conversation:Cannot start a conversation", though again this might have be seen as a clinical observation. However a construct which clearly related to the "physical" character of the speech was classified as "Objective." (For instance "Speech clear:Has a speech defect"). Finally constructs which related to the learner nurse's construction of their own feelings about patients were included in the "Psychological" category. Examples of these, which may be formally described as relating to the respondents' ego state include "I like them:I don't like them." and "Mentally exhausting".

3.36 In appendix E the category accorded to each construct is recorded in the first column alongside the constructs provided by each nurse. The category scores are summarised in Tables viii (Psychological constructs) and ix. (Objective constructs).

3.37 With regards to Tables viii and ix several observations may be made:-

In both interviews all members of the cohort with the exception of learner nurse 10 in the second interview provided more "Psychological" constructs in the "patients as people" grids than in the "patients as patients" grids. Using the "Sign Test" (see Appendix D) this result is statistically significant. ($p < 0.01$ in the first interview and $p < 0.05$ in the second. (The concept of statistical significance is outlined in Appendix D.) In the first interview six out of ten of the cohort provided nine or more "Psychological" constructs in the "patients as people" grid, and in the second this figure was eight out of ten.

3.38 While these results do seem to indicate a fairly general demarcation between the "patients as people" grids and the "patients as patients" grids in terms of the provision of "Psychological" constructs two cautionary notes needs to be struck:-

3.39 (1) There seems to be evidence that the order of grid elicitation affected the results. This is indicated by the observation that in both interviews where the "patients as people" grids were elicited second no "Objective " constructs were provided. This was never the case with the obverse. This artifact may have been caused by the "exhaustion" of individual's pools of "Objective" constructs in the first interview when the "patients as patients" grid was elicited first.

3.40 (2) While there was also a bias towards "Objective" constructs in the "patients as patients" grids, by inspection this does not appear to be quite as strong as the one in the other direction in the "patients as people" grids, as in both interviews three of the cohort

TABLE VIII

NUMBER OF "PSYCHOLOGICAL" CONSTRUCTS

	Nurse	Interviews	AA	AB	BA	BB
	3		7	2	9	5
AA	5		9	2	7	4
+	6		7	3	9	2
BA	8		6	1	9	1
First	10		5	1	2	2
	1		10	5	10	5
AB	2		10	5	10	5
+	4		10	5	10	1
BB	7		10	2	10	1
First	9		10	3	10	1

TABLE IX

NUMBER OF "OBJECTIVE" CONSTRUCTS

	Nurse	Interview	AA	AB	BA	BB
	3		3	8	1	5
AA	5		1	8	3	6
+	6		3	7	1	8
BA	8		4	9	1	9
First	10		5	9	8	8
	1		0	5	0	5
AB	2		0	5	0	5
+	4		0	5	0	9
BB	7		0	8	0	9
First	9		0	7	0	9

Key:-

AA = "Patients as People" - First Interview

AB = "Patients as Patients" - Second Interview

BA = "Patients as People" - Second Interview

BB = "Patients as Patients" - Second Interview

provided equal numbers of "Objective" and "Psychological" constructs. However there is still marked bias. In the first interview seven out of ten of the cohort provided seven or more "Objective" constructs, and in the second six did.

3.41 Finally using the Sign Test there is no evidence of significant change ($p > 0.05$) in any of the category scores between interviews with regard to either the "Patients as people" grids or the "patients as patients" grids.

3.42 In summary the results would seem to indicate that there was a tendency for more extensive use of "Psychological" constructs in the "patients as people" grids in both interviews, though this may be overstated because of a design artifact. The bias towards "Objective" constructs in the "patients as patients" grid is not as strong, but is still evident in both interviews. This seem to indicate that there was some degree of consensus amongst the cohort with regard to what the interviewer was asking them in terms of the sort of construct that were elicited. (This is not to imply that a consensus was consciously formed through learner nurses, discussing the interviews amongst themselves though this might well have been the case.) However one learner nurse (Learner nurse 10) did not go along with this trend. In conclusion while learner nurses did demarcate the grids in terms of content this was not necessarily absolute, especially with regard to the "patients as patients" grids. The form of analysis of construct relationships (below) was accordingly adapted to take this into account. Two caveats must also be added:-

a. There are ambiguities with regard to categorisation.
b. There may have been a design artifact.

3.43 Before leaving the content analysis some general observations should be made about the regularity with which some constructs were used:-

a. The construct "Incontinent:Continent" was used by seven out of ten of the cohort in the first inverview and by eight out of ten

in the second.

b. The construct "Ill:Well" was used either in that form or something similar by five of the cohort in the first interview and by six in the second.

c. The construct pole "confused" was used by six nurses in the second interview.

Analysis of Construct Relationships.

3.44 The question being asked here stems from the comments made at the end of the description of the first Exploratory study. Did "Objective" constructs used in the Constellatory mode include "Psychological" constructs as part of their "package deal" or cluster?

3.45 The quantitive data was analysed using Slater's Principal Component Analysis Ingrid 72 program (Slater 1977). For each interview the "patients as people" grids and the "patients as patients" grids were analysed separately and together (for the purpose of this part of the chapter the former are known as "sub-grids, and the latter as grids.) For each sub-grid the construct which was used most in the Constellatory mode was identified as that with the heaviest loading on the First Principal Component. (see paragraph 2.11). This was termed, for the purpose of this study, as "the Principal Constellatory Construct." It may be argued that the two types of grids are not relatively discrete where in a combined grid their Principal Constellatory Construct is part of the cluster of constructs associated with that grid's Principal Constellatory Construct. The criterion for this was that either:-

a. One of the sub-grids' Principal Constellatory Construct becomes the combined grid's one, and the other subgrid's Principal Constellatory Construct is correlated with it at the "$p < 0.05$" level.

   or

b. The combined grid's Principal Constellatory Construct is not one of the subgrid ones, but is correlated with them at the "$p < 0.05$" level.

3.46 This criterion is of necessity arbitrary, but necessary in order that an impression may be obtained of whether the constructs in the different grids are related. In fact the criterion used is arguably on the strict side. A complete lack of relationship would be signified by a correlation that was equivalent to ninety degrees. The angular equivalent of a correlation significant at the "$p < 0.05$" level ($R = 0.64$, $N = 10$) is 50 degrees. It was pointed out earlier that low correlations do not necessarily relate to psychological significance (see paragraph 1.35). This criticism is born in mind in the design of the main study. Table x summarises the results using the above criterion.

Results

3.47 In the first interview according to the criterion nine out of ten of the cohort provided Principal Constellatory Constructs in the sub-grids which "merged" in the combined grid. In the second five did. This may reflect the fact that in all the combined grids provided in the second interview the percentage variance accounted for by the first component was lower (Table xi) thus providing possible evidence of cyclical loosening (see paragraph 2.8), and thus less stereotyping. On examination the results of those cases in which a merger did not take place were not so clear cut. In all the cases starred in Table x the cluster of construct associated with the Principal Constellatory Construct of the combined grid included the construct with the heaviest loading on the second principal component of the sub-grid from which its Principal Constellatory Construct was not drawn. Only two of the "non-merger" cases did not show this. Overall the case for suggesting that the two types of grids might be separate construct systems is very weak.

3.48 Moreover since there was not always homogeneity in content categories, it was possible that the "mergers" simply reflected the combining of constructs of like category. The summary of the categories of sub-grid Principal Constellatory Constructs which merged provided in Table x shows a mixed result in this regard. In the first interview four out of eight of the "mergers" were of this type, with another ambiguous. In the second interview three out of

TABLE X

CLUSTER MERGERS

Nurse	First Interview	Second Interview
1	+ P + P	+ P + P
2	* (P + P)	* (P + O)
3	+ O + O	+ O + P
4	+ P + O	
5	+ P + O	+ P + P
6	+ O/P + O	
7	+ P + O	* (P + P)
8	+ O + O	+ P + P
9	+ P + O	* (P + O)
10	+ O + O	+ P + O

Key:-

+ = Principal constellatory constructs of subgrids "Merge".

* = Principal constellatory construct of a subgrid second component becomes part of principal component cluster of main grid.

P = Psychological construct

O = Objective construct

TABLE XI

PERCENTAGE VARIANCE, FIRST COMPONENT

	Nurse	Grid A %	Grid B %
"Patients as People First"	3	71	58
	5	65	62
	6	52	45
	8	66	45
	10	69	41
"Patients as People Second"	1	47	41
	2	44	41
	4	49	37
	7	60	47
	9	36	33

five cases were of this type. A broader picture is though presented in Table xii (for the first interview) and in Table xiii (for the second interview). In this it is indicated what category the Principal Constellatory Construct of the combined grid was placed in, and which categories of constructs it was related to (using the "$p < 0.05$" criterion). In this table the two original categories are however subdivided into "themes". These were identified in the course of examining the data, and are very much a personal interpretation.

3.49 "Objective" constructs were identified as being made up of three main themes:-

a. "Dependency". This may be characterised by such constructs as "Can walk without assistance:Needs assistance to walk" or "Independent: Needs to be petted, requires more nursing care".
b. "Condition and Treatment." This may be characterised by such constructs as "Very ill man:Not so ill" or "Up and about:On bedrest".
c. "Physical". This may be characterised by a construct such as "Heavy:Thin".

Constructs that did not seem to fit into any of these themes were labelled as "Miscellaneous."

3.50 "Psychological" constructs were identified as being made up of the following "themes":-

a. "Cognitive Orientation". This theme may be characterised by such constructs as "Quite aware of their circumstances, know that they are in hospital:Content to sit in their own wee world all day" or "Confused:sometimes lose the track".
b. "Communication". This was characterised by such constructs as "Can hold a conversation with her:Can't hold a conversation with her" or "Talkative to staff:Quiet".
c. "Affect". This may be characterised by construct indicative of patients' emotional state for instance "Hot tempered:Quiet" or "Emotional:Normal".
d. "Control". This label was used to indicate constructs which were

TABLE XII

1ST INTERVIEW (A)

CATEGORY & THEME ANALYSIS

		OBJECTIVE					PSYCHOLOGICAL				
Nurse	Dependency	Condition Treatment	Physical	Misc	Cognitive Orientation	Communication	Affect	Control	Interaction	Ego/ Evaluation	Misc
1	+	+	+a	+	+a	+a	+C	+a		+a	+a
2	+a	+a					+a	+C		+a	+a
3	+C	+a	+	+a	+a	+a	+				
4	+C			+a	+a	+a	+a	+	+		+a
5	+C	+		+a	+a	+	+a	+	+a		
6	+C	+a		+a	+a	+a	+	+a		+	+
7	+a	+a			+a	+a	+a	+C			+a
8	+C	+a		+a		+a	+		+		+
9	+a	+C			+a	+a	+a	+			+a
10	+a	+a	+		+a	+C	+a				+a

Key:-

+ = Theme present

C = Principal constellatory construct belongs to this theme

a = A construct of this theme is associated with principal constellatory construct

TABLE XIII

2ND INTERVIEW (B)

CATEGORY & THEME ANALYSIS

		OBJECTIVE					PSYCHOLOGICAL				
Nurse	Dependency	Condition Treatment	Physical	Misc	Cognitive Orientation	Communication	Affect	Control	Interaction	Ego/ Evaluation	Misc
1	+	+a		+	+C	+a	+a			+a	
2	+a	+C					+a	+a	+	+	+a
3	+C	+	+	+a	+a	+a	+a	+a	+		+a
4	+C	+a			+	+a	+		+		
5	+a		+	+a	+C	+a	+	+a			+
6	+a	+C			+	+	+	+		+	+a
7	+a	+C	+a		+	+a	+a	+	+		+a
8	+C	+a		+	+a	+a	+a	+a	+		
9	+C	+a		+a	+	+a	+	+		+	+a
10	+C	+a	+	+	+a	+a	+				+

Key:-

+ = Theme present

C = Principal constellatory construct belongs to this theme

a = A construct of this theme is associated with a principal constellatory construct

related to the patients's wish to control their environment, or their willingness to comply with the nurses' perspective of what they should be doing. Examples are - "Won't do very much for themselves:Will do alot for themselves" or "Attention seekers:Don't see much of him at all."

e. "Interaction". This was characterised by a construct such as "Like you to sit and talk to them."

f. "Ego state or evaluation". This refers to a learner nurse's personal response to a patient, in other words where she described her own emotions, for instance "Less bother:A bother" or "Get on with them:Don't get on with them."

g. Constructs which did not fit into these themes were labelled as "Miscellaneous".

3.51 In Tables xii and xiii it is indicated where a theme is present, and whether a construct of the theme is associated with the combined grid Principal Constellatory Construct. The theme that each of the learner nurses' constructs was placed in is recorded in Appendix E.

3.52 In tables xii and xiii certain patterns stand out. In both tables half the learner nurses had as their combined grid Principal Constellatory Construct an "Objective" construct which was identified as belonging to the "Dependency" theme. In all these cases "Psychological" constructs were associated with them. In the first interview there were also three learner nurses who had "Psychological" "Principal Constellatory Constructs". In all three of these cases a construct of the "Dependency" theme was associated. In the second interview there was only one instance where this was the case.

3.53 The writers' response to some of this data was to a certain degree very subjective. He was not unduly surprised that constructs associated with "Cognitive Orientation" and "Communication" were associated with "Dependency", or constructs associated with "Treatment and Condition" but was surprised to find that some learner nurses associated constructs of "Affect" and "Control" with them. For instance in the first interview Learner Nurse Four associated the

Principal Constellatory Construct "Dependent" (emergent pole) with such "Psychological" constructs as "Confused" (an implicit Pole, so the cautionary statements in paragraph 3.26 apply), and "Pleased that you are doing something for them" (emergent pole). The former association the writer was not surprised at (perhaps sharing this stereotype!), but the association of what might be interpreted as "gratitude" with dependency was for him more surprising. In the second interview learner Nurse Two associates "Likely to suffer from pressure sores" (emergent pole) with for instance "Bit of a pain, but not a bad old stick" (implicit pole), and "Get jealous that other people are getting more attention than they are" (emergent pole). These associations were also surprising. This was not a general pattern though, some learner nurses as will be apparent from Tables xii and xiii did not make these associations. It is not possible to ascertain whether learner nurses, who made these associations did so consistently over a period of time, as the same constructs were not used in the two interviews.

Conclusions

3.54 Two initial conclusions seem possible from this Exploratory study. The first is that the idea of studying the way learner nurses related different types of constructs through eliciting two different types of grids was probably misconceived. While some degree of demarcation in terms of content was noted, when it came to examining the "mergers" a more complicated picture emerged, and it thus seemed more reasonable to examine the sort of constructs which made up the "package deals" or clusters. This leads to the second conclusion - that some learner nurses utilised stereotypes that included "Objective" constructs and "Psychological" constructs. Moreover in some cases the "Psychological" constructs so related included those pertaining to the emotional state of the patient and how they complied or tried to assert control over their environment. The Main study that follows was designed to explore this further, and to improve the methods used, in light of problems encountered in the Exploratory studies.

CHAPTER FOUR

DESIGN AND FIELDWORK OF MAIN STUDY

4.1 The general aim of the study was to develop the insight drawn from the second Exploratory study that some learner nurses utilised stereotypes relating "Objective" constructs with "Psychological" constructs. Given that the learner nurses' placements on the wards are intended to be learning experiences the question posed in this Main study was whether these stereotypes were stable or whether they were changed with experience on the wards.

The formal hypotheses were:-

4.2 (1) That where "target" constucts (see below) where more stereotypically (tightly) related by learner nurses to "elicited" constructs regarding patients' personalities then they would be less likely to change the pattern in which they related these "target" constructs to the elicited constructs over time.

4.3 (2) That where "target" constructs were more stereotypically related by learner nurses to elicited constructs regarding patients' personalities then they would be less likely to change the way they construed particular patients in terms of those "target" constructs.

4.4 Both these hypotheses are based on the argument that constructs that are used stereotypically (tightly or in the constellatory mode) may be more difficult to change due to the loss of predictive power.

Sample of Learners

4.5 Data was obtained and analysed from thirty two learner nurses allocated to wards for the elderly in five hospitals and drawn from four schools of Nursing. The learner nurses were all of the "student" grade. The spread of learner nurses over the five hospitals and wards as well as the sex composition of the ward patients are set out in Appendix F.

4.6 The size of wards ranged from eighteen patients to thirty five

patients. Five other learners completed the first interview, but not the second, and are not included in the analysis. Two other learner nurses completed both interviews, but because a large number of the patients that they had been asked about in the first interview had left by the time of the second, their data was discarded (see below). Due to the need in the design for the elements (patients) in the first interview to be aligned with those in the second interview, learners in wards in which there was a large turnover of patients were not used. Ward designations, for instance "long term" and "assessment" did not necessarily relate to this. The subjective judgement of nurse managers was relied on here, though in hindsight the figures of weekly discharges would have enabled a more objective judgement. Learner nurses were written to individually in the first week of their allocated time on the ward asking for their consent to be interviewed twice, with a reply slip enclosed. (see Appendix G.)

Method

4.7 Description of the method is divided into five sections - Preparation, Elicitation of Constructs, Provision of Constructs, Scaling and Second Interview.

Preparation

4.8 At the first interview it was first explained to the learner nurse that the writer was interested in their personal perception of the patients in their care, that the technique used was not a test, and that the information they gave me was confidential, and in any report could not be traced back to them. They were then asked if they knew the names of the fifteen patients written on separate 10 * 10cm cards. Also it was checked with them whether any of the patients were about to leave the ward. (again to ensure element alignment). If either they did not know one or more patients or if one or more were about to leave a new name or names were drawn from a reserve pile of prepared cards. On the obverse side of each of these cards was a letter, a different letter for each patient. The fifteen patients' names as well as the reserve pool had been drawn from a list of the names provided by the ward sister, using a scrabble bag

with letters corresponding to patients. This was not completely random as the letters were not put back in the bag after each withdrawal. A larger number of patients' names were used than in the Exploratory study, in part because the rating technique (see below) made it more practical; arguably it is difficult to rank a large number of things; and in part to ensure a broader and thus more representative sample.

Elicitation of Constructs

4.9 The elements having been decided upon the learner nurse was presented with three cards bearing the names of patients and asked to say in what ways two of these patients were alike in terms of their personality and different from the third. The term "personality" was used to encourage the learner nurses to provide "Psychological" constructs as opposed to "Objective" ones which were provided for reasons set out below. It was felt that "personality" was enough of a "lay" term to be meaningful. A possible alternative "Psychological" arguably would have sounded technical and might have inhibited response, while the "patients as people" term used in the second Exploratory study did not necessarily result in an homogeneous content. Ten combinations of triads were provided:-

C.E.F.
D.K.L.
A.B.G.
H.I.N.
J.M.O.
B.E.O.
F.I.K.
D.M.N.
A.J.L.
C.G.H.

4.10 These were so formulated that a patient's name was not paired with another more than once. All the patients' names were used twice only. In order to overcome the problems there were in obtaining the implicit pole in the Exploratory study, having provided the emergent

pole, the learner nurses were asked to provide the opposite of it. If an elicited construct was duplicated in terms of one pole, but different on another, the learner nurse was asked which of the two pairs of poles was most satisfactory for her in describing opposites. While ten triads were provided the aim was to obtain seven constructs only for the learner nurses to rate, thus hopefully reducing the risks of individuals exhausting their construct pools. A strict criterion was used in selection of these seven constructs. Ideally the first seven unreplicated, triadic elicited constructs were used. If as happened in the second Exploratory study diadic elicitation was used, constructs thus obtained were only used after all the triad elicited ones were used. These were in turn then selected in order of elicitation until there was a pool of seven constructs. In all cases all ten triads were used.

Provision of Constructs

4.11 Apart from being asked to scale (see below) seven of the elicited constructs, the learner nurse was also asked to scale seven provided ones. Provision of constructs as opposed to elicitation from the respondent has been the subject of much debate in the literature. Fransella and Bannister (1977) and Pope and Keen (1981) provide reviews of this. The debate centres round the proposition that constructs are by definition personal to the individual. Thus Pope and Keen write: "One should remember that whatever meaning words may have, they are assigned or ascribed to them by people. Thus when a person is provided with the investigator's labels on the construct poles, the meaning ascribed to those labels may not be isomorphic with the meaning the investigator assumes these labels hold". (1981, Page 41). Both Pope and Keen (1981) and Fransella and Bannister (1977) cite the same papers to suggest that subjects prefer to use their own constructs. For instance Land field (1965) found that when constructs were ranked by subjects in terms of how useful they had proved in describing people, elicited constructs were ranked higher. However Fransella and Bannister (1977) suggest that from a practical viewpoint, provision of constructs may be necessary. Arguably the research reported here comes under this heading, constructs being provided for the following reasons:-

4.12 (1) To enable a nomothetic quantit.ative analysis to be carried out, while at the same time preserving the high degree of individual variety that an idiographic approach allows. This was done by measuring quantitatively the form of relationship between targeted constructs, the identical forms of which (with a proviso below) were provided to the whole of the cohort, and all the elicited constructs. This will be made more explicit in the section describing the analysis.

4.13 (2) To make it possible for the relationship between constructs representing particular themes (especially objective ones) and a representative pool of learner nurses psychological constructs of their patients to be examined with particular reference to stereotyping. In a normal elicitation process it could not be guaranteed that a particular type of construct would be provided.

4.14 (3) While provision of constructs was intended primarily to enable investigation of stereotyping of "Psychological" constructs with specific "Objective" ones, it also enabled certain "Psychological" themes to be explored, some of which also (e.g. that of like and dislike) might not have come up in the normal process of elicitation.

4.15 Arguably when providing constructs it is important to try and ensure that they will be meaningful to the person being asked to scale them. The constructs selected to represent themes identified in the second Exploratory study are set out below, and an attempt is made to explain why each one would have been expected to be meaningful to the learner nurses. The themes covered, and the constructs used to represent them are as follows:-

4.16 (1) The "Dependency" theme. The construct provided was "Physically independent:Physically dependent". This did not correspond exactly to any construct provided in the Second Exploratory Study though one or other or both poles of "Independent:Dependent" was used. The preface "physically" was added to emphasise that it was not "personality" that was being referred

to.

4.17 (2) The "Condition" theme. Two constructs were used. These were "Ill:Well" and "Continent:Incontinent". (see paragraph 3.43). The former was quite regularly used in the second Exploratory study, while the latter was very regularly used.

4.18 (3) The "Physical" theme. One construct was used - "Light:Heavy". This was an unfortunate choice as it became clear after a learner nurse asked for clarification, that this construct was used as a metaphor for the amount of work required with a patient. (The writer from personal experience was in fact aware of this use.) Thereafter (Nurse 4 onwards) it was made clear at the onset that "Weight" was being referred to.

4.19 (4) The "Cognitive orientation" theme. The construct "Confused:Mentally Alert" was used. The pole "confused" was quite regularly used in the second "Exploratory study". (see paragraph 3.43).

4.20 (5) The "Affect" theme. One construct representing this theme was used - "Happy:Unhappy" representing affect. This was not used in this exact form in the second Exploratory study, but was used on the assumption that it was a commonly used construct for describing people in general. (In fact Osgood, Suci and Tannenbaum, 1957, in their attempt to find universal dimensions of meaning used "Happy:Sad" and placed it in the "affect" dimension.)

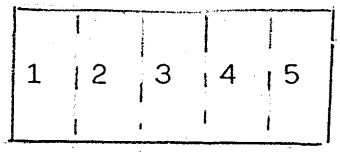
4.21 (6) The final construct used was drawn from "Ego state" theme (see paragraph 3.50) which included expressions of personal like and dislike. Given the history of nurses being reluctant to express preference for patients (see for instance Stockwell 1972) the construct "I like him:I don't like him" which was provided by a learner nurse in the second Exploratory study was not used as it was felt the use of the first person would increase inhibition. Instead the construct "Pleasant:Unpleasant" was used, which was not used in the second Exploratory study in this exact form, but was thought to have the advantage that it did not include the first person singular.

4.22 The order that these "target" constructs were presented to the learner nurse in for rating, as well as the pole permutation were determined for each learner by allocating each target construct with two letters, one for each permutation of pole order. These were drawn from a scrabble bag. Order of drawing determined order of presentation. The pole of a particular construct that was drawn first was labelled as the emergent pole. This procedure may be criticised as it was not strictly random in that letters were not replaced on withdrawal. It seems unlikely though that it made much difference; with regard to pole permutation, the maximum imbalance of poles used as "emergent" was with "Happy:Unhappy", "unhappy" being used by nineteen learner nurses as the "emergent" pole.

Scaling of the elements on the constructs.

4.23 Having elicited the constructs those selected for scaling were "Starred" on the interview transcript. The first such construct was then written on a card with the emergent pole on the left side and the obverse pole on the right side. Then the learner was provided with:-

a. All fifteen cards of the patients' names, with the names facing upwards and towards the nurse.
b. An A4 size card as illustrated below:-



This also facing the learner nurse.
c. The card with the construct on it.

4.24 The learner nurse was then asked to rate each patient from the emergent (left side) pole to the converse (implicit) pole (right side) by placing each patient's card in the appropriate column on the card. She was also told:-

a. That column 3 was a neutral rating; if neither pole of a construct applied to a patient this was the appropriate column.
b. That she did not have to fill all the columns.

c. To sort the cards in the columns so she could see all the names. (This to facilitate the sort.)
d. To take her time.

4.25 When the learner nurse had completed the task a duplicate set of cards with the patients' names on them was provided as well as a duplicate sorting card, along with a second sorting card. (During the first sort the interviewer wrote out the remaining six elicited constructs.) She was then asked to repeat the sorting task. During this and subsequent sorts the interviewer recorded the previous sort using the letter coding. Subsequent to this the cards were shuffled before being returned to the learner nurse to reduce the possibility of the sorting being influenced by "set". Once the elicited constructs had been rated the learner nurse was then asked to similarly rate the provided constructs. Cards for these were prepared in advance of each interview in the pre-determined order, and pole permutations (see above). On completion the learner nurse had provided a 15 * 14 grid.

4.26 The use of a rating scale was a radical departure from the Second Exploratory study. In these the learner nurses were asked to rank the elements on the constructs. However as noted earlier, some did not find this easy and ties tended to occur. For this reason it was decided to use a rating scale which allows individuals the flexibility of grouping like with like. Unfortunately there was not time to experiment with different rating scales. The five point scale (above) was selected for the following reasons:-

a. Slater (1977 opinion cited) observed that most five point scales recorded enough variation for most experimental purposes.
b. A five point scale allows for a neutral grade in the centre. Words, for instance - above average, good average, average, poor average, below average were not used because of their positive and negative connotations, which might have implied to the learner nurses some aspect of the writer's own construction system. A numerical scale such as +2,+1,0,-1,-2 was not used for a similar reason.

Second Interview

4.27 In the second interview the learner nurse was asked to re-rate the originally elicited constructs, and the provided constructs using an identical procedure to the first interview, so that the first and second interview grids were totally aligned. Unfortunately it was found that despite precautions taken, in two thirds of the cases patients had left the wards. This problem had not occurred in the second Exploratory study so had not been anticipated. As correlation coefficients are constants it is arguably valid to compare them (as is done in the analysis, see paragraph 5.7) even when the number of elements had been reduced. The smaller the "N" (number of elements) the higher the correlation has to be statistically significant. This is because the measurement is less stable with small numbers, one alteration in the data producing a greater change in the result. It is hard to see how this could bias the results to support the first hypothesis; indeed greater instability of the correlation coefficients might diminish the probability of the hypothesis being upheld. The second hypothesis could not be tested with regard to those learner nurses who did not have the use of all the elements in the second interview, for reasons which will be made explicit in chapter 5. (see paragraph 5.4).

4.28 At the time the following decisions were made:-

a. If a patient had only left up to a week previously his or her name was kept in the element pool. After this time the patient's name was discarded, and not replaced. This ad hoc decision was reached after discussion with the first learner nurse with whom the problem was met. She felt she could not remember much about a patient who had left over a week previously.
b. If a patient had died his or her name was not used and not replaced.
c. If the element pool was reduced to eleven or less the data was discarded. This was an ad hoc decision as to at what stage the loss of elements would distort the pattern of change in construct relationships. (However in light of the comments above arguably retention of such data should increase confidence in any results

that seem to confirm the first hypothesis.)

CHAPTER FIVE

ANALYSIS AND RESULTS OF MAIN STUDY

5.1 This chapter is divided into three parts:-

a. Part A describes in detail the analysis of the raw data.
b. Part B describes the statistical analysis of the cohort data. (Including the scope for individual variation.)
c. Part C describes the content analysis.

Part A Description of Analysis of Raw Data

5.2 In order to describe this clearly the information that was extracted from the raw data of a single learner nurse is outlined below.

5.3 Table xiv lists the constructs elicited from the nurse (numbers 1 - 7) as well as the seven provided "target" constructs (numbers 8 - 14). The numbering corresponds to that used in the numerical data that follows. A "+" is used in the numerical data to denote the "emergent" pole and a "-" the "implicit" pole.

5.4 Table xv illustrates the grid obtained from the learner nurse in the first interview. Table xvi illustrates that obtained from her in the second. The only piece of "hand" analysis (as opposed to computer analysis) that was performed on this data was to identify the extent to which the elements were rated on each of the provided constructs similarly in interview one and two. (See chapter 2, paragraph 2.13). Table xvii, illustrates how this was done for the provided construct "Physically Independent:Physically Dependent". In it the ratings from row 9, Table xv are subtracted from the same row in Table xvi and the differences summed regardless of the sign. This is termed the Element Rating Consistency Score. It should be noted that this analysis was only possible for the data of the learner nurses who were able to rate all the patients they had in the first interview in the second. To have done otherwise might have resulted in the scores being artificially reduced.

TABLE XIV

EXAMPLE OF CONSTRUCTS (NURSE O)

Construct	Emergent Pole +	Implicit Pole -
1	Can communicate	Can't communicate
2	Accept their illness	Frustrated
3	Agitated	Calm
4	Spoiled	Don't demand too much
5	Happy to take one's word	Questions everything
6	Get nasty when crossed	Placid
7	Has mood swings	Clear cut
8	Incontinent	Continent
9	Physically dependent	Physically independent
10	Happy	Unhappy
11	Unpleasant	Pleasant
12	Heavy weight	Light weight
13	Physically ill	Physically well
14	Confused	Mentally alert

TABLE XV

RAW GRID - FIRST INTERVIEW (NURSE O)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	ELEMENTS
1)	3	3	4	4	1	3	2	1	3	2	2	2	3	1	1	
2)	4	2	5	4	4	3	4	2	2	2	4	2	2	3	1	
3)	2	3	2	3	3	4	2	5	4	4	5	2	5	3	5	
4)	4	4	3	1	2	4	4	4	4	4	1	2	3	1	2	
5)	1	1	1	3	5	1	1	1	1	3	3	5	1	5	5	
6)	4	5	1	1	1	5	3	5	3	2	3	1	1	1	2	
7)	1	4	1	3	1	3	1	4	1	3	4	1	1	1	1	
8)	4	1	2	2	3	3	1	4	1	1	3	1	3	4	4	
9)	3	2	1	1	2	1	2	4	1	3	1	4	1	1	3	
10)	2	3	2	3	3	3	2	1	2	2	2	3	2	5	3	
11)	5	4	5	4	3	5	4	5	3	3	5	5	3	3	4	
12)	3	3	3	1	1	1	3	1	3	1	2	3	1	5	1	
13)	3	1	4	4	4	3	1	5	4	1	1	4	4	1	4	
14)	4	1	1	5	1	3	1	1	1	1	3	3	5	3	5	

CONSTRUCTS RATINGS →

RAW GRID - SECOND INTERVIEW (NURSE O)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	ELEMENTS
1)	3	4	4	3	1	3	3	1	2	2	1	1	3	1	1	
2)	1	1	3	1	3	1	1	3	1	1	1	3	1	1	1	
3)	1	1	1	3	1	5	4	3	5	4	1	1	5	1	3	
4)	4	5	1	1	1	5	4	3	5	5	1	1	4	1	1	
5)	1	1	2	4	5	1	1	3	1	1	5	4	1	5	5	
6)	2	5	1	1	1	5	5	3	5	2	1	3	1	1	1	
7)	1	4	1	1	1	4	4	3	4	1	1	3	1	1	1	
8)	1	1	1	2	4	3	4	4	1	2	3	1	4	5	2	
9)	3	1	2	3	3	1	1	4	1	2	1	2	1	1	2	
10)	3	1	3	3	5	1	1	1	1	3	5	4	1	5	3	
11)	4	4	3	4	1	5	5	5	4	3	2	3	4	2	3	
12)	3	3	3	1	1	1	5	1	2	1	3	3	1	5	1	
13)	5	1	5	3	1	1	1	5	5	1	1	1	1	5	5	
14)	3	1	1	3	1	1	1	2	1	1	1	3	1	5	5	

CONSTRUCTS RATINGS ⟶

TABLE XVII

CALCULATION OF ELEMENT RATING CONSISTENCY

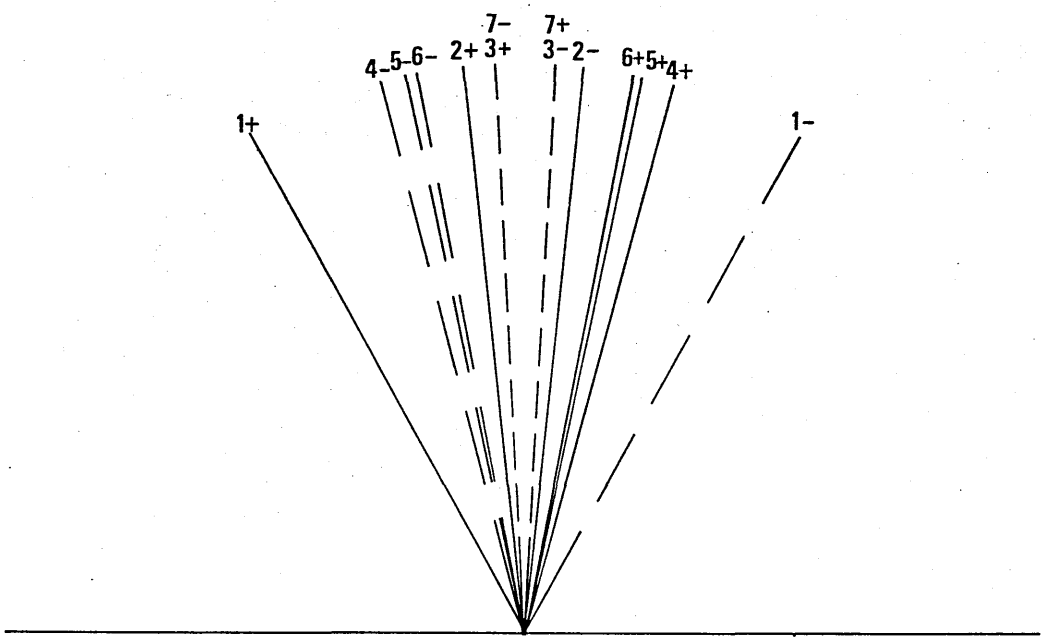
Construct 9 (Table O)	Construct 9 (Table P)	Difference
3	3	0
2	1	1
1	2	1
1	3	2
2	3	1
1	1	0
2	1	1
4	4	0
1	1	0
3	2	1
1	1	0
4	2	2
1	1	0
1	1	0
3	2	1
	Total	10

5.5 This raw data also illustrates why great caution needs to be taken in analysis of grid meaning. It will be noted that the learner nurse rated the patients only from 3 to 5 on the construct Unpleasant:Pleasant in the first interview. This may mean that she was unwilling to express the view that a patient was unpleasant or it may mean she simply did not construe patients as such. This ambiguity can only be resolved by asking the respondent (something which was not done here). Interestingly in the second interview three patients were rated towards the "emergent" pole. Again the precise significance of this change can only be ascertained by asking the respondent.

5.6 Table xviii (in Appendix I) is a copy of the construct correlation and angular distance matrix provided as part of the Ingrid 72 analysis of the grid in Table xv. Table xix (in Appendix I) illustrates the corresponding output for the grid in Table xvi. Two forms of "hand" analysis were performed on the angular distances in both matrixes (it will be noted that for this purpose angles were rounded to the nearest whole number):-

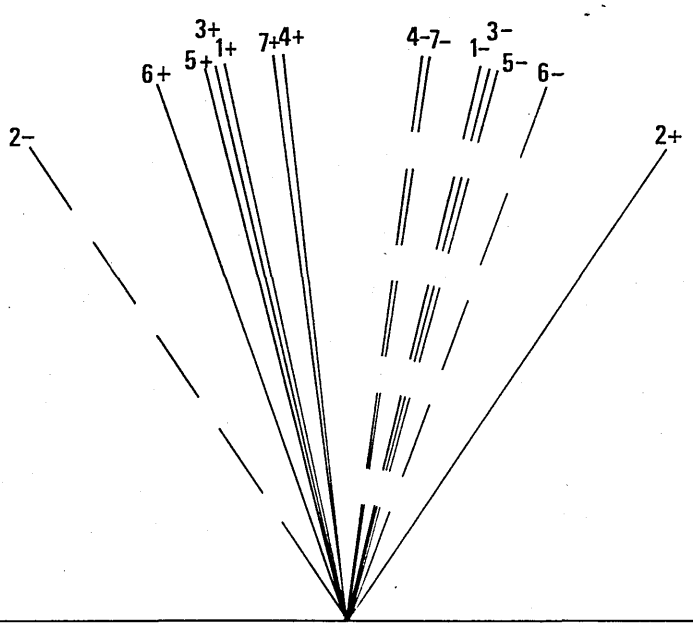
5.7 (1) For each of the "target" constructs an index of consistency of relationship over time with the elicited constructs was obtained. The target construct "Physically Dependent:Physically Independent" is used as an example. The angles relating all the elicited constructs to it are illustrated for each interview in Fig B. It will be noted that for the purpose of interpreting meaning it is important to indicate which of the elicted construct poles most closely relates to which target construct pole. The index of consistency may however be obtained by ordering the "explicit" (+) poles from left to right on each of the diagrams, and then calculating the Spearman Rho Rank Order Correlation Coefficient between the two sets of rankings. A rank order correlation was used because in some cases the distribution of angles was curvilinear (i.e. a bunch of angles with a large gap in between) which may result in distortion of the Product Moment Correlation Coefficient. (Opinion cited Kinnear 1971). Table xx illustrates the resulting ordering and the Spearman Rho thus obtained.

1ST INTERVIEW (i)



PHYSICALLY INDEPENDENT PHYSICALLY DEPENDENT

2ND INTERVIEW (ii)



PHYSICALLY INDEPENDENT PHYSICALLY DEPENDENT

Fig.B

TABLE XX

RANK ORDERING OF ANGLES BETWEEN ELICITED CONSTRUCTS AND CONSTRUCT NINE

Elicited Construct	Rank (First Interview)	Rank (Second Interview)
1	1	4
2	2	7
3	3	3
4	7	6
5	6	2
6	5	1
7	4	5

Spearman RHO = -0.21

5.8 (2) Table xxi is an extract from Table xviii and illustrates the angles relating the target constructs to the elicted constructs. Table xxii illustrates the same extract with regard to Table xix. One change has been made though in that all the obtuse angles have been converted to their acute angle counterpart, so that each column may be summed to obtain a measure of "tightness" between each target construct and the seven elicited constructs. The scores were defined as Target Consruct Tightness Scores. Mathematically this is analogous to the measure of construct intensity (see 2.12) except that angles are used instead of "relationship scores" to enable arithmetical procedures to be carried out. (see 1.32). It may be argued that angles are "figuratively" a more appropriate measure of "tightness". It will be noted that the same result would have been obtained for construct 9 by summing separately the angles on the left hand side of the diagrams in Fig B.

Part B Cohort Analysis

5.9 For each of the "target" constructs a table summarises the output derived from the sort of analysis performed above with regard to the cohort as a whole:-

Table xxiiia - Physically Independent:Physically Dependent.
Table xxiiib - Physically Well:Physically Ill. (In Appendix I).
Tavle xxiiic - Light:Heavy. (In Appendix I).
Table xxiiid - Continent:Incontinent. (In Appendix I).
Table xxiiie - Pleasant:Unpleasant. (In Appendix I).
Table xxiiif - Happy:Unhappy. (In Appendix I).
Table xxiiig - Mentally Alert:Confused. (In Appendix I).

5.10 These tables are laid out in identical ways:-

Column 1. provides a letter code for each learner nurse to aid analysis, and so the reader may cross reference with the record of constructs provided, recorded in Appendix H.

Column 2. records the "target" construct Tightness score for the first interview. These scores are ranked from tightest to loosest.

TABLE XXI

CALCULATION OF TIGHTNESS SCORES (FIRST INTERVIEW)

Elicited Constructs	Target Constructs						
	8	9	10	11	12	13	14
1	66	61	79	78	89	84	82
2	80	84	84	74	72	83	83
3	68	87	76	80	55	82	77
4	74	75	56	86	85	90	61
5	79	78	51	76	88	89	75
6	85	79	69	65	86	81	74
7	87	87	76	72	69	75	80
Tightness Scores	539	551	491	531	544	584	532
Average Angle	77	79	70	76	78	83	76

TABLE XXII

CALCULATION OF TIGHTNESS SCORES (SECOND INTERVIEW)

Elicited Constructs	Target Constructs						
	8	9	10	11	12	13	14
1	68	77	67	60	85	84	65
2	89	56	77	76	83	85	84
3	81	76	46	53	65	83	73
4	81	73	40	50	83	78	59
5	72	75	38	46	89	82	85
6	79	70	46	49	80	78	67
7	83	72	48	51	80	78	69
Tightness Scores	553	499	362	385	565	568	472
Average Angle	79	71	52	55	81	81	67

PHYSICALLY INDEPENDENT

PHYSICALLY DEPENDENT

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Score
B	1*	368	468	0.25	75	
F	2*	374	433	0.96	16	8
W	3*	376	464	0.39	67	
C	4*	395	415	0.96	16	21
AD	5*	406	451	0.64	50	
K	6*	407	478	0.93	22	
AC	7*	413	427	0.89	27	7
J	8*	416	485	0.61	52	9
L	9*	420	494	0.71	45	
G	10	422	485	0.79	38	
X	11*	427	380	0.82	35	
Y	12	432	499	-0.61	128	
M	13*	438	492	0.79	38	
U	14*	453	466	0.87	36	10
E	15*	461	365	0.56	56	
AE	16*	463	407	0.82	35	
H	17*	466	394	-0.03	92	
Q	18	469	516	0.71	45	8
D	19	471	429	0.46	63	
AA	20	498	492	-0.14	98	4
Z	21	519	435	0.82	35	
P	22	521	469	0.64	50	
N	23	522	550	-0.04	97	
I	24	528	545	0.14	82	
AB	25	532	467	0.11	84	
R	26	539	426	0.18	80	12
AF	27	546	537	0.84	31	
O	28.5	551	499	-0.21	102	10
T	28.5	551	520	0	90	10
V	30.5	552	559	0.32	71	
S	30.5	552	554	0.16	81	
A	32	565	535	0.57	55	7

Column 3. records the corresponding Tightness score for the second interview.

Column 4. records the Target Construct Consistency Scores.

column 5. records the angular equivalent of these Consistency scores.

Column 6. records where appropriate the Element Rating Consistency Scores.

5.11 Three forms of analysis were performed on this data:-

a. Hypothesis testing.
b. Descriptive statistics: (of tightness Scores).
c. A description of the scope for individual variation.

Hypothesis Testing

5.12 Two hypotheses were tested:-

Hypothesis One. This was that where "target" constructs were more stereotypically (tightly) related by learner nurses to "elicited" constructs regarding patients' personalities then they would be less likely to change the pattern in which they related these "target" constructs to the elicited constructs over time." This was tested by calculating the Spearman Rho Correlation between the rank ordering of the first interview Tightness scores and the rank ordering of the Consistency Scores (see paragraph 5.7, above). For only two of the target constructs was a statistically significant correlation obtained. (see Table xxiv.) These were "Physically Independent :Physically Dependent" (Spearman Rho 0.48 $p < 0.01$) and the "Mentally Alert:Confused" (Spearman Rho 0.40, $p < 0.05$).

5.13 These correlations do not necessarily allow one to accept the hypothesis as regards these two target constructs as the relationship implied may be so weak to be of no practical importance. On first sight this does in fact appear to be the case. The actual strength

TABLE XXIV

Spearman RHO correlation coefficients between first interview tightness scores and target construct consistency scores.

Target Constructs	Spearman RHO
Physically Independent: Physically dependent	0.48 $p < 0.01$
Physically Well: Physically Ill	0.18
Continent: Incontinent	0.27
Light: Heavy	0.30
Pleasant: Unpleasant	0.11
Happy Unhappy	0.35
Mentally Alert: Confused	0.40 $p < 0.05$

N = 32 for all these correlation coefficients

of a correlation may be assessed in two ways. First, by squaring the correlation the shared variance between the two sets of scores may be obtained. With regard to "Physically Independent:Physically Dependent" this is 23% and with regard to Mentally Alert:Confused this is 16%. Neither of these shared percentage variances are very high. Secondly Connolly and Sluckin (1971) suggest that a correlation of 0.87 is required if useful predictions based on regression equations may be made. (i.e. in this case, that a certain rank of Tightness score may predict a certain rank of Consistency score). They indeed argue that predictions from correlations of 0.5 are fairly unreliable. Both of the correlations being considered above are less than this.

5.14 However a close look at the data in Tables xxiiia and xxiiig provided a different perspective. The higher Consistency scores (Spearman Rho Correlations) appeared to be mainly bunched in the top half of the first interview Tightness score rankings (hereafter known as the "tight" cohort) and conversely the lower ones mainly in the lower half (hereafter known as the "loose" cohort). In order to examine this further the consistency scores were converted into angles by obtaining their inverse cosines. (see column 4, Tables xxiiia to xxiiig). For each of the target constructs these were summed for the cohort as a whole and for the "tight" and "loose" cohort. This confirms the impression formed from examination of the data (see Table xxv). For "Mentally Alert:Confused" the "tight" cohort total was 61% of the "loose" cohort data. For Physically Independent:Physically Dependent this difference was 64%. The next in order were "Continent:Incontinent" and "Light:Heavy" with a difference of 83%. There thus seems to be a prima facie case for accepting the hypothesis as regards "Physically Independent:Physically Dependent", and "Mentally Alert:Confused" albeit with the caution that there is not a high level of prediction.

5.15 It may also be observed from Table xxv that the target constructs differed quite considerably in the overall totals. A Sign test was accordingly run between the consistency scores of all the possible pairs of Target Constructs. The results of this indicated that learner nurses related "Pleasant:Unpleasant" more consistently

TABLE XXV

Overall totals and sub cohort totals of construct consistency scores angular analogues

Target Constructs	Cohort Total	"Tight" Cohort Total	"Loose" Cohort Total	Percentage Difference
Physically Independent: Physically Dependent	1892	736	1156	64
Physically Well: Physically Ill	2196	1116	1080	96
Continent: Incontinent	1807	820	987	83
Light: Heavy	2256	1025	1231	83
Pleasant: Unpleasant	1502	720	782	92
Happy: Unhappy	1802	856	946	90
Mentally Alert: Confused	1736	660	1076	61

over time to the elicited constructs than "Physically Ill:Physically Well", "Light:Heavy", and "Physically Independent:Physically Dependent". "Mentally Alert:Confused" was related to the elicited construct more consistently than "Light:Heavy" and "Happy:Unhappy" more than "Physically Well:Physically Ill". (All these significant results are at the "$p < 0.05$" level".)

5.16 Hypothesis 2. This was "that where "target" constructs were more stereotypically related by learner nurses to elicited constructs regarding patients' personalities then they would be less likely to change the way they construed particular patients in terms of those "target" constructs." Using an attenuated cohort (see paragraph 5.4, above) a Spearman Rank Order correlation was calculated (for each target construct) between the rankings of the first interview Tightness scores and the rankings of the Element Rating Consistency Scores. No statistically significant correlation coefficients were obtained. (see Table xxvi).

5.17 Descriptive Statistics (of Tightness scores).

The term "descriptive" is used flexibly in this section as some statistical tests (i.e. in which the null hypothesis is tested) are used as an aid to the description. It should be emphasised that the results below were obtained on the basis that they might be of use in generating further hypotheses in the concluding chapter - in other words they are strictly exploratory.

5.18 Table xxvii summarises the main characteristics of the tightness scores:-

Columns 1 and 2 record the mean scores for each interview, giving an indication of the central tendency. The order in which the target constructs are recorded in the table reflects the order of the first interview means. It will be noted that the order for the second interview is virtually identical.

5.19 Columns 3 and 4 record the range of scores found in each interview.

Spearman RHO correlation coefficients between target construct tightness scores and element rating consistency scores.

	Spearman RHO
Physically Independent: Physically Dependent	-0.04
Physically Well: Physically Ill	0.24
Continent: Incontinent	-0.14
Light: Heavy	0.07
Pleasant: Unpleasant	-0.55
Happy: Unhappy	0.48
Mentally Alert: Confused	-0.03
	N = 11

TABLE XXVII

DESCRIPTIVE STATISTICS OF TIGHTNESS SCORES

	Mean 1st Interview	Mean 2nd Interview	Range 1st Interview	Range 2nd Interview	Standard Deviation from Mean 1st Interview	Standard Deviation from Mean 2nd Interview	Coefficient of Skewedness 1st Interview	Coe. of Skew 2nd Inte
Pleasant:	425	436	303	262	71	78	+0.29	-0.1
			–	–				
Unpleasant			557	580				
Happy:	454	449	324	289	70	72	+0.02	-0.4
			–	–				
Unhappy			602	563				
Physically Independent:	469	475	368	365	61	53	+0.22	+0.0
			–					
Physically Dependent			565	-570				
Continent:	473	488	365	354	53	45	-0.08	-0.8
			–					
Incontinent			578	-560				
Mentally Alert:	479	488	317	337	67	57	-0.82	-0.9
			–					
Confused			580	-570				
Physically Well:	498	511	368	403	57	50	-0.55	-0.8
			–	–				
Physically Ill			584	598				
Light Weight:	528	517	430	409	38	49	-0.94	-0.6
			–	–				
Heavy Weight			577	578				

5.20 Columns 5 and 6 record the standard deviations of the scores.

5.21 Columns 7 and 8 record the coefficient of skewedness indicating the extent and direction in which the scores were biased from the central tendency. A negative coefficient indicates that the scores were biased towards values higher than the mean, and a positive one that they were biased towards values lower than the mean. (Further details are given about this coefficient in Appendix D.)

5.22 Column 9 records the results to the Wilcoxon test calculated in order to assess for whether there was any significant change in Tightness scores. There was no statistically significant change.

5.23 Columns 10 and 11 record the Wilcoxon test scores calculated from the "tight" and "loose" cohorts (defined as above). Only the scores of the target constructs "Pleasant:Unpleasant" and "Light:Heavy" do not show statistically significant loosening in the tight cohorts. For the target construct "Continent:Incontinent" the significance of this change was at the "$p < 0.01$" level reflecting the large change in skewedness that will also be noted in columns 7 and 8 while for the remainder which showed significant "loosening" the statistical level of significance was "$p < 0.05$." (It must be emphasised that the individual "members" of these cohorts are not the same for each target construct). With regard to the "loose" cohorts there was only one statistically significant result the tightness scores of the target construct "Happy:Unhappy" showed significant "tightening" ($p < 0.05$).

Individual Variation

5.24 The above paragraphs have concentrated on the general trends visible in the data. However this has in a sense served to underline the immense scope for individual variation. From the above analysis it is possible to describe quantifiably individual variety under the following headings:-

a. The tightness in which the individual relates each target

construct to the elicited constructs.

b. Whether over time the individual tightness or loosens these relationships.

c. Whether over time the individual maintains consistency in the relationship pattern.

d. Whether over time the individual is consistent in the way she rates the patients on each of the target constructs.

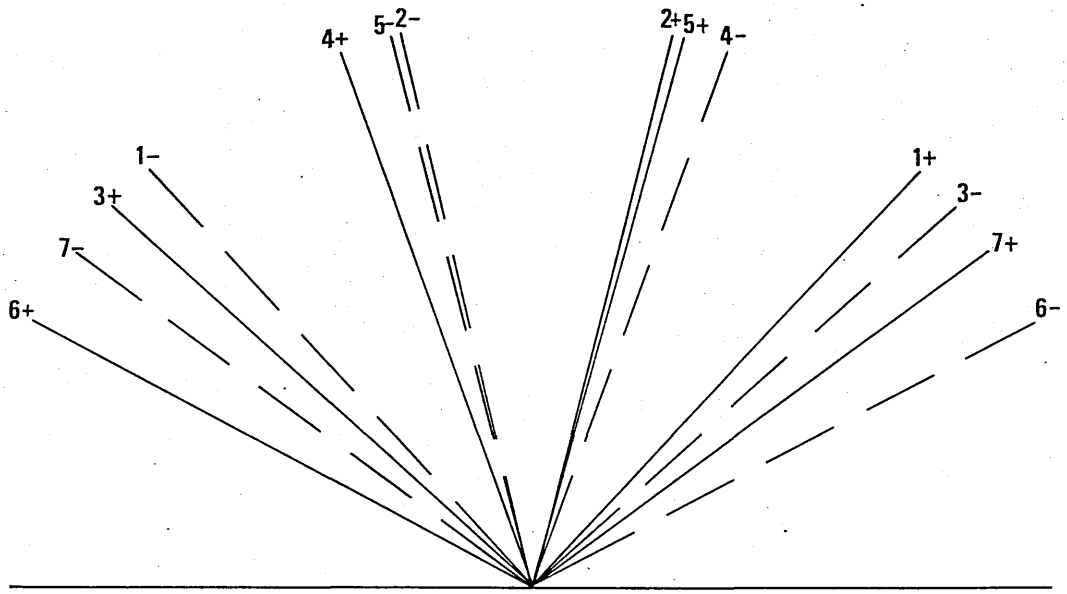
5.25 The form this individual variation can take may be illustrated by drawing from the data for the target construct "Physically Independent:Physically Dependent" which had the highest correlation between "tightness" and "consistency". Three examples may be cited:-

5.26 (1) Learner nurse F ranked second in Table xxiiia illustrates what was a fairly typical pattern for the "tight" cohort - a tight score in comparison with the rest of the cohort, loosening over time, and a high level of consistency over time. Two "spoke" diagrams (fig C) illustrate this rather well. In it the "emergent" poles are recorded by continuous lines, and the "implicit" poles by hatched lines and thus it may clearly be seen how the pattern remains consistent (in terms of the ordering of degree of relationship) but that same time the "spokes" in the second diagram are generally more orthogonal - in other words more loosely related. Finally it may be noted that in comparison with the learner nurse ranked third her element rating consistency score was quite low.

5.27 (2) Learner nurse B ranked first in Table xxiiia provides a similar pattern to the one above except that there is much less consistency over time. (A difference of 59 degrees if one uses the angular analogues in column 4.) Fig D provides a diagramatic summary as above

5.28 (3) Learner nurse O ranked twenty eighth in Table xxiiia illustrates the "typical" pattern for the "loose" cohort with a low level of consistency. Also there is evidence of tightening - in other words an increase in predictive capacity. (This was not picked up as a significant pattern in the data.) Fig B provides a diagramatic summary.

1ST INTERVIEW (i)



2ND INTERVIEW (ii)

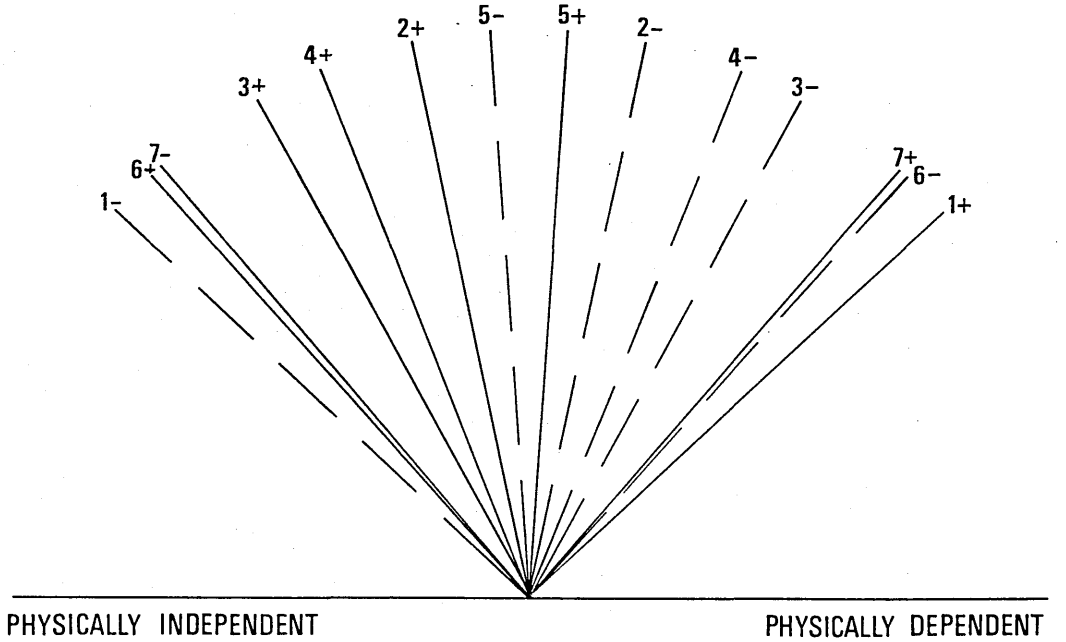
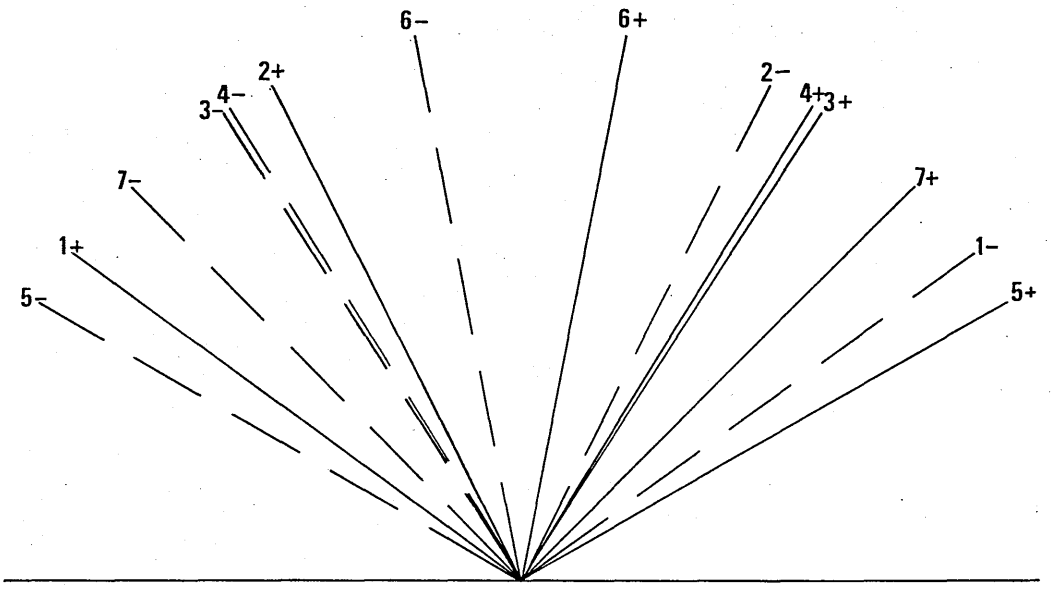


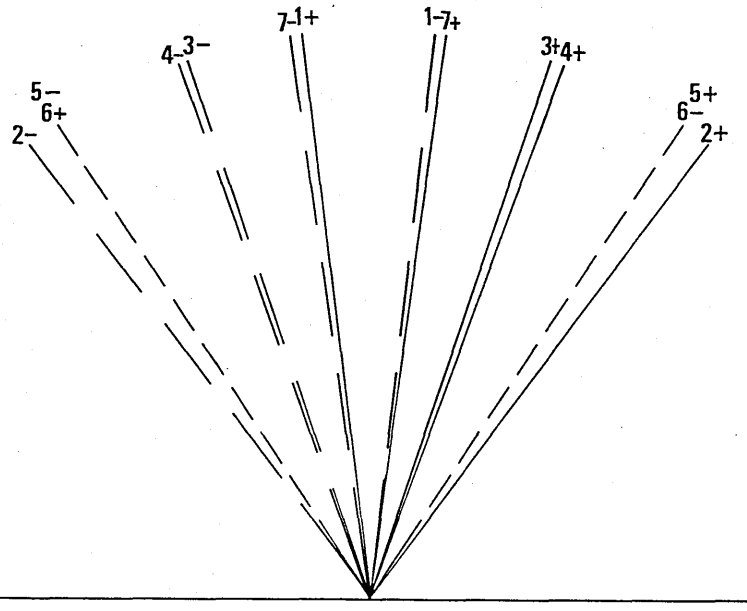
Fig.C

1ST INTERVIEW (i)



PHYSICALLY INDEPENDENT PHYSICALLY DEPENDENT

2ND INTERVIEW (ii)



PHYSICALLY INDEPENDENT PHYSICALLY DEPENDENT

Fig.D

5.29 (4) Learner nurse AF ranked twenty seventh in Table xiiia "bucks the trend" for the "loose" cohort with a relatively high level of consistency. Her tightness score only changes marginally. Fig E provides a diagramatic summary.

Part C Content Analysis

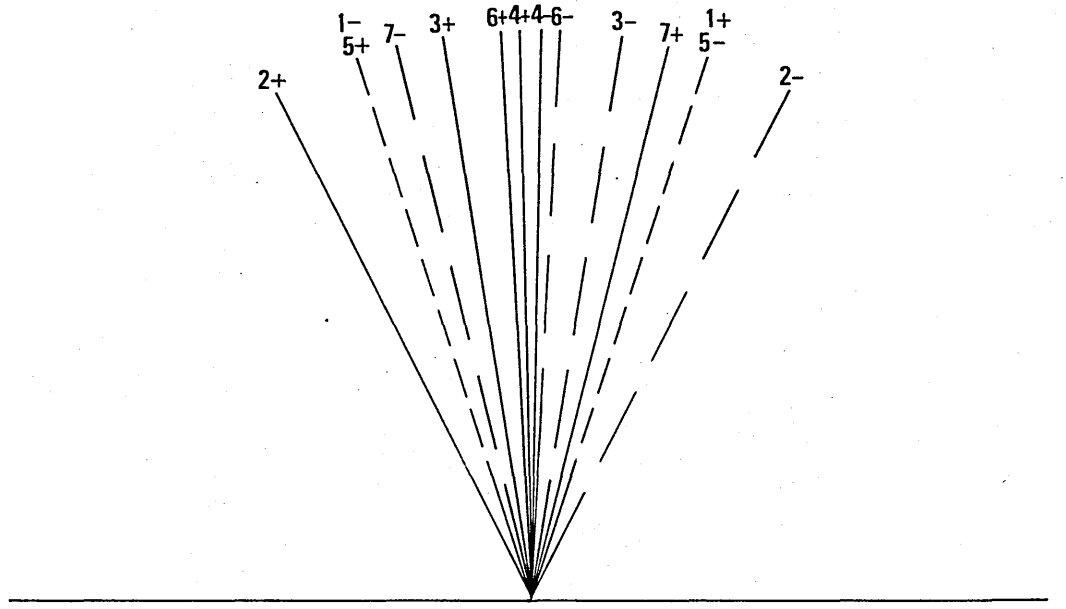
5.30 The description of quantifiable variation above omits the most potent source of variation, the provision by the learner nurses of "Personal" constructs. Paradoxically (in view of this statement about variety) a content analysis was performed to serve two purposes, first to ascertain whether as was intended the learner nurses concentrated on the "Psychological" sphere. The second was to identify whether there were any themes which were not picked up in the second Exploratory study.

5.31 As in the second Exploratory study constructs were initially classified by the writer as "Objective" or "Psychological". (See Second Exploratory Study for definitions.) These classifications are recorded in Appendix H. Table xxviii summarises the result. Only two constructs were categorised as being "Objective". This was presumably because the learner nurses interpreted the instructions as intended (i.e. that they should concentrate on the personalities of the patients.) Themes were identified amongst the Psychological constructs. Again these were as "thrown up" by the data. It should be made explicit that this reflects the writer's personal interpretation of the constructs, and that different categories and themes might be identified by other workers from the same batch of constructs. These themes were:-

5.32 (1) "Cognitive Orientation" Theme. e.g. "Interested in what is going on in the ward:Not interested in what is going on in the ward." Only five nurses used constructs reflecting this theme, presumably because "Mentally Alert:Confused" (or one of the poles) was not permitted as it was going to be provided.

5.33 (2) "Interaction/Communication" Theme. Unlike in the second

1ST INTERVIEW (i)



2ND INTERVIEW (ii)

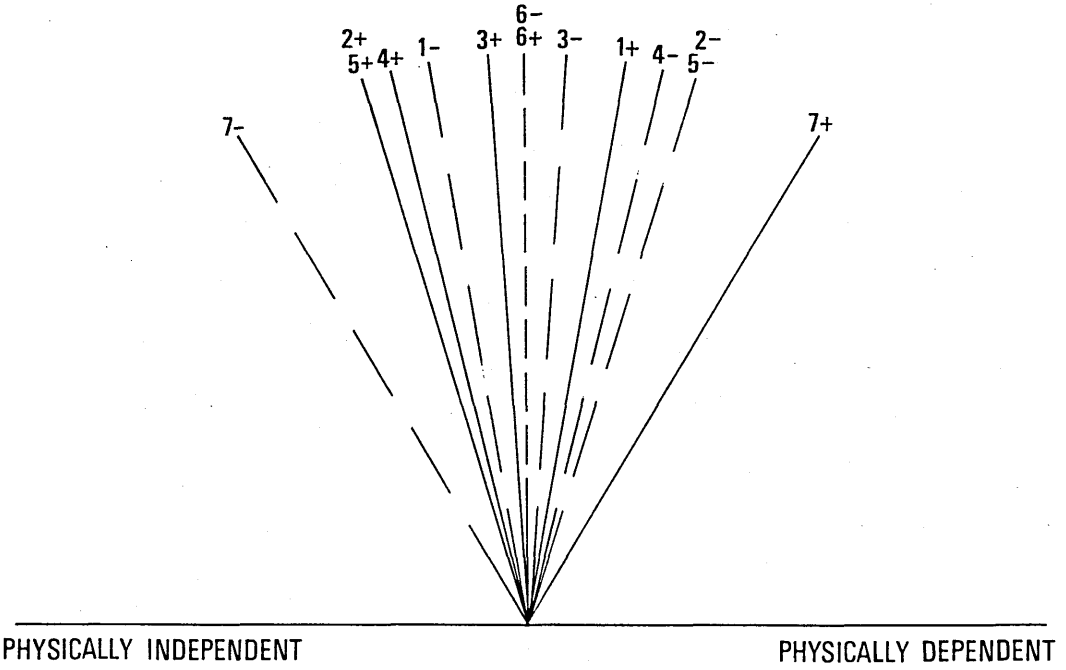


Fig.E

Exploratory Study these were combined because it was felt that a construct such as "Not easy to talk to:Easy to talk to", could be in either category. This example illustrates an inherent problem with categorisation, for it could just as easily be taken to refer to a learner nurse's ego state. All the learner nurses used constructs referring to this theme. Two "sub" themes were also identified (see Table xxviii.) One of these refers to patients' ability to communicate or not to communicate - for instance "Can communicate:Can't communicate" (nine nurses were identified as referring to this theme). The other was where one of the construct poles was the term "quiet" for instance "Quiet:Loud".

5.34 (3) "Affect" Theme. This referred as before to descriptions of patients's emotional states e.g. "Agitated:Calm". Only eight learner nurses did not use constructs referring to this theme.

5.35 (4) "Demanding" Theme. All constructs included in this theme had the adjective "demanding" as one of the poles e.g. "Demanding:Not Demanding", "Demanding:Submissive". Eighteen learner nurses provided a construct reflecting this theme. It must be emphasised that the use of identical poles by learner nurses does not necessarily imply communality of meaning. This is especially the case where the contrasting poles are different.

5.36 (5) "Aggressive" Theme. All constructs included in this theme include the adjective "Aggressive" as one of the poles e.g. "Aggressive:Quiet Natures." Thirteen learner nurses provided such a construct.

5.37 (6) "Cooperative" theme. This referred to where it seemed that reference was being made to patients cooperating in their care. e.g. "Keen to get on:Disinterested." Sixteen learner nurses provided constructs which seemed to relate to this theme.

5.38 (7) "Complaining" theme. This referred to where the adjective complaining was used in one construct pole e.g. "Uncomplaining:Complaining." Seven nurses used such a construct.

TABLE XXVIII

THEMATIC SUMMARY MAIN STUDY

Nurse	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
Objective						1																										
Interaction	2	2	3	2	4	2	2	1	2	2	2	3	2	1	1	2	1	1	4	2	2	4	3	1	2	1	2	3	3	2	3	3
Sub Themes:- Quiet						1						1		1							1	1	1		1			1	1			
Communication Ability							1			1					1			1				1	1		1		1					
Cognitive Orientation									1			2									1			1						1	1	
Affect	1	2	1	1	1		1	2	1	2	1	1		2	3	1	3	3			1	1		1	1			1			1	1
Demanding		1	1		1		1	1	1	1					1	1		1	1	1	1				1	1		1			1	1
Aggressive			1	1			1	1	1					1			1	1	1					1	1	1	1					
Cooperative				2		1	2		1						1	1	1	1					3			1	1	1	1	1	1	
Complaining		1		1	1						1			1			1		1	1												
Prediction		1													1							1			1					1		
Miscellaneous	1	1	1			3		2		2	3	1	5	2		2	1			3	2	1	1	3	1	3	3	1	3			3

5.39 (8) "Miscellaneous" referred to those constructs which the writer found hard to relate to particular themes e.g. "If you took them out of the ward their whole world would collapse:Would be happy at home with proper care."

5.40 The general impression that the writer formed from this task was that it did not appear that learner nurses had concentrated on particular themes to the exclusion of all others, so that it may be that a reasonable sample of the learner nurses' constructs was obtained. (Some doubt is shed on this conclusion, see paragraph 6.9 of the next chapter.)

CHAPTER SIX

DISCUSSION AND CONCLUSIONS

6.1 Two general conclusions may be drawn from the results outlined in the previous chapter:-

6.2 (1) It would seem that individual learner nurses vary a lot not only in the extent that they use certain constructs with regard to patients stereotypically, but also in the extent that this changes over time. It may be argued that this conclusion is banal, as it is what should be expected from a technique, developed from a theory of personal constructs, and where (as in the case of this research) emphasis is put upon eliciting personal constructs. However as it may be argued that personal constructs are those which are relevant to the individual, then the results emphasise a very important point - that it should not be asserted that groups of people use certain terms stereotypically just because these are commonly used. (see the comments on the Individuality Corollary, (paragraph 1.14). In the second Exploratory study the results seemed to indicate that the close linkage of constructs relating to dependency were quite commonly closely linked to individual learner nurses theory of patients' personalities. (in the second Exploratory study, the term "Psychological" construct was used instead). The results of Main study, while not totally contradicting this view (see below) do serve to emphasise that individuals vary greatly in this respect. Unless proved otherwise, the presumption should now be that the commonly used constructs identified in this study - Demanding, Aggressive and the common theme of cooperativeness will actually be used with different degrees of stereotypy by different learner nurses. It might be argued that the wide degree of variation was due to the varying experience of the learner nurses on different wards which for instance may have differed in management style, number of patients, and education support. (Caution must be expressed here because it will also be recalled that one of the implications of the Commonality Corollary (see paragraph 1.22) is that individuals who have the same experience may not construe it similarly). In contrast it may also be argued that it is as misleading to concentrate on individual variation as it is to concentrate on human similarity. To gain an

accurate picture it is necessary to do both. In contrast, though, it must be emphasised that the fact that a wide area of variation may be identified does not exclude the possibility that there may be areas of common agreement. (see paragraph 1.22).

This said, the practical implications of the observations about variation should arguably be that individual learner nurses should be viewed as individuals with personal perceptions about the patients.

6.3 (2) With regard to two constructs - "Physically Independent: Physically Dependent" (reflecting the theme of "Dependency") and "Mentally Alert:Confused" (reflecting the theme of cognitive orientation) there does seem to be some evidence that the more stereotypically learner nurses use these in relation to their peers, the more likely it is that the "package deals" associated with these two constructs will remain relatively intact. Several cautionary points must be made about this statement:-

a. It refers to a certain social context, and a certain time scale.
b. The fact that the general pattern of construal remains intact does not seem to preclude a weakening in the predictive level of the stereotyping - as evidenced by the significant loosening that occurred with regard to both constructs in the "tight" cohorts. (see paragraph 5.14). This is compatible with a suggestion of Cochran (1977) that "tight" construers (see paragraph 2.9) when faced with inconsistency will in the first instance loosen their construct organisation (in other words reduce its predictability) but maintain the pattern of construct relations.
c. It must be emphasised that what this study did not do was identify the constructs of individual learner nurses that were used in the Constellatory and Propositional Mode in the way that Emerson 1982 did, though the study drew on some of the same techniques that he used (see paragraphs 2.11 and 2.12). This means that it cannot be precluded that individual learner nurses whose Tightness scores were low for particular target constructs compared to their peers may still within the context of their own construct systems have been using particular target constructs stereotypically.

d. It may be if constructs had been re-elicited in the second interview a different pattern might have emerged. It is possible that the constructs elicited at the end of the four weeks were no longer so relevant to the learner nurses, and that new ones might reveal very different patterns of construal. If it is the case that the old constructs were no longer relevant then this might for instance mean that a learner who had apparently not changed her theory had done so.

e. Finally it should be noted that the lack of evidence to support the second hypothesis, while reliant on a much smaller sample, arguably reflects the fact that individual learners may maintain consistency with regard to stereotyping but at the same time alter their view on how a particular construct within this stereotype may be applied to particular patients. (see paragraph 5.26).

6.4 Apart from the above five caveats certain difficulties would be encountered if the above observation were to be put to practical use, as the chance of an individual changing his construction of patients could only be assessed by comparing him with his peers. In other words it would not be possible to make a prediction from an individual's grid alone. By chance, one observation was made about the data which does indicate that this is not quite so. At an early stage in exploring the data the writer identified the "elicited" construct in each learner nurse's first interview grid which was most tightly related to all the other elicited constructs. (in the same manner as Tightness scores were calculated for the target constructs). This construct, it may be argued was the one used most in the Constellatory mode. It was then noted for each learner nurse which of the target constructs were correlated with it at the "$p < 0.05$" level. (A star denotes in tables xxiiia - g those tables summarising the data of each of the target constructs) where this occurred. It will be noted that with regard to "Physically Independent:Physically Dependent" and "Mentally Alert:Confused" that most of the stars cluster in the "tight" cohort. While no probability function may be placed upon it this it as least suggests that where a learner nurse produced this sort of result that special care should be taken that she is not "stuck" with it. (This will be

expanded upon later on).

6.5 There is also the major question of why the first hypothesis could be upheld for the two constructs above and not for the remaining target constructs. One plausible explanation is that these two constructs were used by many learner nurses as superordinate constructs which could be used to cross reference between two "subsystems" one relating to patients' ability to care for themselves and one relating to the learner nurse's theory of human nature. In other words the target construct "Physically Independent:Physically Dependent" and "Mentally Alert:Confused" may be superordinate to more specific constructs of "Dependency" for instance regarding feeding, dressing and washing. Bannister and Fransella (1980) argue that individuals may find it difficult to relate different subordinate constructs directly, and only do so by working through superordinate constructs. (see paragraph 1.15.) Assuming that this is correct a very simplified line of reasoning that a nurse might use is as follows. If she construes a patient as unable to dress herself, she may not be able to link this directly to any "Personality" construct. However by moving up to the more general construct "Physically Independent:Physically Dependent", if this is closely linked to "Personality" constructs she may be able to make a link between two apparently unlinked constructs of "Dependency" and human nature. The argument then is that the "Tightness" scores only acted as predictors of consistency in this research design where constructs were used by most learner nurses superordinately to a subsystem separate from that pertaining to patients' personality. With regard to "Physically Independent:Physically Dependent" and "Mentally Alert:Confused" it is possible that the Tightness scores are a measure of cross referencing. A change of the implication pattern of such a construct would have far reaching effects on the predictive capacity of the system, and thus in line with the premises outlined in paragraph 2.13 might well be avoided.

6.6 Unfortunately because of the design there is no direct evidence to support the assertion that these two constructs are different in the way described. In the first place it would be necessary to show that "Physically Independent:Physically Dependent" and "Mentally

Alert:Confused" were commonly used as superordinates to more specific constructs of "Dependency". Secondly by asking the learner nurses to provide "Personality" constructs the writer in effect excluded the use of personal constructs relating to "Dependency". Even if this had not been done there would have been problems in producing evidence of "cross referencing". Quantitative measures of degree of relationship do not provide explicit evidence of "lines" of reasoning. It is demonstrable that a construct in a grid has a greater degree of implication than the rest (see paragraph 2.15), but it cannot be assumed that an individual cross references using just this construct. There may for instance be lower level superordinates that link particular sub-systems. Techniques have been developed by Hinkle (1965) as outlined in paragraph 2.15 to show how individuals move up a hierarchy and by Landfield (1971) to illustrate how individuals move down a hierarchy. In Landfield's technique individuals are asked to say what sort of person represents one of the poles of a construct he has provided, and in turn ascertain what sort of person represents one of the poles of the new construct that is obtained. As with Hinkle's measurement (see paragraph 2.15.) Bannister and Salmon (1967) did not find any correlations between the results obtained from this technique and quantitative statistical measures.

6.7 At best the results, including the descriptive statistics can generally be "fitted in" with the argument that "Physically Independent:Physically Dependent" and "Mentally Alert:Confused" may be used as superordinate constructs and enable "cross referencing" to occur. In Table xxvii it may noted that the order of means with regard to the target constructs was the same in both interviews. The following general points may be made from this order:-

6.8 The two "Psychological" target constructs "Pleasant:Unpleasant" and "Happy:Unhappy" had the two highest means. In the first interview the distributions about the mean were slightly skewed for both constructs, in the second for "Pleasant:Unpleasant" there was a small degree of negative skewedness, while for "Happy:Unhappy" this negative skewedness was more marked. Finally Table xxv provided weak evidence in the form of the summed overall angular totals that these

two constructs were related more consistently to the elicited constructs than the rest. This was partially confirmed with regard to "Pleasant:Unpleasant" using a weak statistical test which does not take into account the extent of difference. (It thus cannot be excluded that, using a more powerful statistic, support for the pattern in Table xxv would not have been firmer for both constructs). From this pattern of data the following argument may be put forward:-

6.9 It may well be that both these constructs are commonly used superordinate constructs. This might explain the greater tendency for these constructs to be related "tightly" to the "Personality" constructs. As these may be superordinates used in construing people as a whole it may in turn not be surprising that, over a four-week experience of elderly patients on a ward, there should be some evidence of greater consistency in terms of construal patterns and "tightness" than for the other "target" constructs which may not be so closely linked with individuals' general theories. This also raises the question of whether it was correct to treat patients as an exclusive subsystem and not to include non-patients.

6.10 It was argued above that constructs which are used superordinately are used to cross reference. It may well be that if the design had included elicitation of personal constructs regarding "Dependency" and not those regarding "Personality", the first hypothesis would have been upheld with regard to the relationships between these two constructs and a "Dependency" subsystem. In other words the design may have excluded a subsystem for these two constructs to be cross referenced with. In this sense the results may be an artifact of the design. it should however be noted that if the design had not put a restriction on the type of constructs elicited it would not have been possible (as an extension of the argument in the preceding paragraph) to separate one subsystem from the other.

6.11 Examination of the results of the constructs at the other end of the mean "Tightness scores" ordering indicates that for most learner nurses they appear to have relatively little relationship with their constructs of the patients' personality. With regard to "Light:Heavy" this can be stated fairly firmly. The two means are

just over 100 points away from the maximum score (630), and the coefficients of skewedness are strongly negative (in other words the scores are heavily distributed on the high side of the mean). This pattern is generally the same with the target construct "Physically Well: Physically Ill." The results of the target construct "Continent:Incontinent" are considered separately because as noted in Chapter 5 (paragraph 5.23) the tight cohort's tightness scores show extensive "loosening". This is reflected in a slightly lower mean in the second interview, and a large negative coefficent of skewedness (which was not present in the first interview).

6.12 Turning to the two constructs for which the first hypothesis was accepted two points should be made. The first is that the tightness scores for "Mentally Alert:Confused" are not markedly different form "Physically Well:Physically Ill" and "Light:Heavy" in both interviews, and "Continent:Incontinent" in the second interview - the means are low and the distribution negatively skewed. The only major difference would seem to be that the first hypothesis was upheld. The presumptive explanation is that, as suggested above, "Mentally Alert:Confused" is generally used more superordinately than the other three, and so the degree of tightness with which individuals related it to "personality" constructs is moderately predictive of the degree, change will be resisted. (This statement should perhaps be modified to suggest that it is possible that the change in the "Continent:Incontinent" scores perhaps signifies a change in the extent of superordinacy.) The construct "Physically Independent:Physically Dependent" had higher means and slight positive skewed distributions in both interviews. The first two measures would seem to indicate that more learner nurses linked it to their "Personality" theory. This may indicate that it was used in a more superordinate fashion by many of the learners than "Mentally Alert:Confused". The marginally higher correlation found between the first interview tightness scores and the consistency scores than for "Mentally Alert:Confused" may reflect this.

6.13 It perhaps could be argued that the next logical step from this research would be to examine the superordinacy issue further in order to test some of the presuppositions above. As outlined above (and in

paragraph 2.16) there seems though to be a major problem in employing the classical grid technique in order to do this, and that indeed the technique may not be compatible with methods with employ a "lines of reasoning" technique. However the use in recent years of grids as cognitive mirrors (e.g. Pope and Keen 1981 and Shaw 1980) provides some indication that the two approaches are not necessarily incompatible. The cognitive mirror technique involves feeding back the results of grids (in an understandable form) to the providers. With micro-computers this may be instantaneous. This has several major advantages:-

6.14 (1) The respondent can comment on whether the results are a reasonable summary of his construction system, and can if he wishes add important constructs (or elements) he which feels might enhance the accuracy of the report. This may preclude nomothetic measures as standardisation is reduced. A criticism of the research reported above is that it may well be that some learner nurses were not given the chance to provide all the constructs that were important to them due to the limitation on the number to be elicited, necessitated by the nomothetic quantitative methods of analysis employed.

6.15 (2) Feedback can stimulate discussion which adds "meat" to the results - for instance placing them within a broader social context. Thus it may be possible to trace the evidence that an individual uses to determine whether for instance someone is pleasant or unpleasant. For instance it should be possible to ascertain (after May and Kelly's 1982) suggestion, cited in (paragraph 1.24) whether patients who invalidate nurses' views of themselves are construed stereotypically. Conversely the grid may focus both the interviewer and interviewee on the issues which are of prime importance to the latter. Shaw (1980) within this context refers to the grid technique as a conversational tool. Used as such it should be possible for instance using Landfield's (1971) laddering technique to explore the hierarchical structure of individual's systems.

6.16 (3) There is also evidence that feedback enhances self awareness and reconstruction. Keen (1977) is cited by Shaw (1980) as having found that the test - retest reliability on grids as being

less than 0.2 and not significant when feed back is provided, but significant at the "$p < 0.01$" level when feedback was not provided. Pope (1977) also found that feedback enhanced the attainment level of learner teachers in formal exams and assessments. Arguably therefore the greatest potential for the Grid technique (within the context of Personal Construct Theory) is to broaden the perspective of both educators and learner nurses as to what learning on the ward is about. The learner nurses cited by Fretwell (1980, cited in Chapter 2) who felt they had nothing to learn on wards for the elderly may have felt this way because they had not been asked to consider the way they developed an understanding of the patients as a learning process. The tentative evidence provided in this research that those learner nurses who used the constructs "Physically Independent:Physically Dependent" and "Mentally Alert:Confused" in a more stereotypic manner were not in the business of reconstruction, may also be indicative that for some this particular sort of ward placement is not a learning experience. Personal Construct Theory, with the Repertory Grid Technique has the potential to correct this.

6.17 In conclusion it may be argued that the logical step in which stereotyping should be studied within the framework of Personal Construct Theory and the Repertory Grid Technique should not be to attempt to make general quantitative statistical statements even of an abstract nature, but to use the theory and the technique to enable individuals to become more aware of the extent of the meaning of the stereotypes they use. To quote Shaw the aim should be to "tease out forms and structures which are natural rather than imposed." (Shaw, 1980, p 15).

Arguably only when natural structures are identified - in other words grids are used to enter the phenomenological world of individuals will it then be possible to link learner nurses' construal of patients to the way they care for them.

APPENDIX A

COMPARISON BETWEEN THE REPERTORY GRID TECHNIQUE AND PSYCHOLOGICAL TESTS.

The Repertory Grid is a varying "technique" not a test. However some interesting insights may be gained by discussing it in terms of the three criteria by which Tests are judged:- Power of Discrimination, Reliability and Validity. (Opinion cited, Kline 1982.)

Power of Discrimination:-

Tests are required to discriminate between individuals. Arguably Grids do this "par excellence". The individual who provides the Grid is given considerable freedom to display his unique pattern of construing within a structured framework, especially if he provides his own constructs. Conversely it may argued that scores derived from attitude, personality and intelligence tests provide measures of sameness based on deviations from the average. Baloff and Becker (1967) in a critique of this approach showed how learning curves based on the average scores of a number of individuals did not resemble the learning curves of any individual.

Reliability:-

Boyle defines "Reliability" as referring "to the consistency with which a test gives the same result on different occasions." (Boyle, 1971, p 88). If an intelligence tests' scores differs for individuals from one testing to another its value for predicting future performance is deemed as low. It may be argued though that given that the Experience Corollary posits that individual's constructions may change with experience, the criterion of "Reliability" should not apply to Personal Construct Theory. Instead, the focus of attention should be on how, if and when individuals' change their personal construct systems. Thus for instance, Keene (Pope and Keene, 1981, page 97) has provided evidence that feedback of the results of an original grid to a subject often results in a repeated grid showing considerable change with the

converse being the case if no feedback is provided. (It is debatable though whether this rule of thumb can be extended outside the context of Keene's research, which was into self appraisal by teachers.)

Validity:-

Boyle defines "Validity" as referring "to the success with which a test measures what it claims to measure." (Boyle, 1977, p 88) Kline (1982) argues that this may be assessed from several different viewpoints:-

(1) Face Validity. It may be argued that a test should appear to a respondent to measure what it is meant to measure. With Grids this may be assessed in several different ways. In the first instance a researcher should be sensitive as to whether a particular grading system is suitable for an individual. The individual may comment directly that he cannot discriminate between elements properly using a particular scale or that the scale used demands too fine a discrimination. Alternatively the raw data may indicate that there were problems with scaling which meant that a subject's meaning was not accurately portrayed. As an example, if a subject provided a lot of ties when ranking elements it might indicate that too fine discriminations were being asked for. After a grid has been elicited further information can be acquired from a subject to determine its validity. He can be provided with the output of the analysis in order to comment on how accurately this reflects his construct system. When the output is, to borrow a phrase from computer technology, "user friendly" as arguably Shaw's "Focus" Technique (see Appendix C) is, a person may experience this output as personally significant, and indeed gain new insights about himself. (Opinion cited Shaw 1981, page 33). This may explain why Keene (above) reported "reconstruction" after feedback, and it is possible that the extent to which feedback does generate reconstruction is another way of assessing the face validity of a grid.

(2) Concurrent Validity. This refers to the extent that one type of test correlates with another measuring the same variable. It should be noted (opinion cited, Fransella and Bannister 1977) that different

methods do not necessarily produce equivalent results. It may also be argued that the important thing is to assess which scaling method is most appropriate to the individuals concerned. This was in effect reiterated in the section on "face validity" above. Thus arguably "concurrent validity" may be ignored when using grids.

(3) Predictive validity. This refers to the capacity of a test to correlate with some future criterion measurement. For intelligence tests this criterion measurement might be the number and quality of 'O' level passes. As the Repertory Grid Technique does not itself automatically produce a score with which a similar measure might be derived, scores may be derived from it that do something similar. Thus Bannister (1960) and Bannister, Fransella and Agnew (1971) provided evidence that thought disordered Schizophrenics (the criterion measurement) suffer from a consistent gross loosening (the derived score) of constructs relationships.

(3) Construct validity. Kline defines this as follows:- "The construct validity of a test is defined by taking a large set of results obtained with the test and seeing how well they fit with our notion of the psychological nature of the variable which the tests claims to measure." (Kline, 1982, p 112.) In this research the "psychological nature" is Personal Construct Theory. From this point of view Fransella and Bannister's argument would seem to hold good "that since grid technique is intimately bound up with personal construct theory it is important to investigate the validity of the technique in terms of how effectively it can operationally define terms within the theory and provide means for testing the hypothesis derived from the theory." (Fransella and Bannister, 1977, p 100.) This is the approach mainly used to determine validity in the research reported in this paper. Interestingly Fransella and Bannister use as an example of this approach to validity, Levy's (1956) research (see paragraph 2.14) concerning the difference between Propositional and Constellatory Constructs. This is in a similar vein to the research reported here.

APPENDIX B

SUMMARY OF SHAW'S (1980) CRITIQUE OF CORRELATION COEFFICIENTS

Shaw's criticism of the correlation coefficient is based on the argument that it distorts the subjects' responses, by allowing "linear match" to take precedence over the actual match. She gives as an example the following array of data:-

Construct 1	-1	-0.5	0	0.5	1
Construct 2	1	0	1	2	3
Construct 3	-1	-0.5	0	0.5	1.5

Visual inspection would indicate that constructs "1" and "3" form the closest match, differing (very slightly) in column five. However in fact construct "1" and "2" correlate more closely, having a correlation of unity. This occurs because the scales are, as part of the mathematics, normalised. The correlation between constructs "1" and "3" is 0.986. Thus Shaw argues that a subject's meaning may be distorted. Slater (1977) argues that normalisation may be justified if there is reason to believe that a person is not using scales commensurately. However the problem is that in using the correlation coefficient normalisation is compulsory! Shaw (1980) proposes as an alternative the use of "distance measures" or "metrics", in particular arguing that one particular "metric" - Minkowski's city block provides the least distortion of a subject's meaning. This is based on Euclidean Geometry. Ideally it might have been best to have compared the results obtained from the two different measurements (The Correlation Coefficient and Minkowski's City Block) in the course of the research described in this thesis. Unfortunately a computer program using Minkowski's City Block was not available at the work base.

APPENDIX C

CONSIDERATION OF TWO METHODS THAT MAY SUMMARISE THE EXAMPLE DATA IN CHAPTER ONE MORE ADEQUATELY THAN PRINCIPAL COMPONENT ANALYSIS

There are two methods which arguably cope more adequately with the data (see Chapter one). One is that of Mahklouf-Norris, Jones and Norris (1970) as illustrated in Fig F Clusters of construct poles which correlated positively at the "$p < 0.05$" level are enclosed in sets. Thus the construct poles "talk to other patients", "Independently minded", "Forthcoming" and "Pernickety" form one set. This "cluster" is linked to the construct pole "Physically ill" by the construct pole "Easy going" being correlated with both this construct pole and that of "Talk to other patients" at the "$p < 0.05$" level. Moreover it accurately puts construct "5" closer to construct "13" than construct "12", which the map illustrated in Fig A does not. (This may be confirmed by reference to the correlation matrix illustrated in Table iii.) Its disadvantage is that it is based upon the implicit assumption that correlations not significant at the "$p < 0.05$" level are also not psychologically significant.

A system which gives a similar result to Fig F, without this pitfall is the "Focussing" technique of Shaw (1980). She provides the following example of construct "matching" scores:-

	(1)	(2)	(3)	(4)
(1)		68	42	83
(2)	68		51	30
(3)	42	51		52
(4)	83	30	52	

(Shaw, 1980, p37.)

The highest matrix cell is constructs "1" and "4" at 83%. Columns one and four are thus "marked", this match listed and the procedure repeated excluding the value. the highest match is now construct "1" with construct "2" at 68%, and thus columns one and two are marked. Column one is now excluded from further consideration as it is now matched on both sides. The next match is construct "3" with

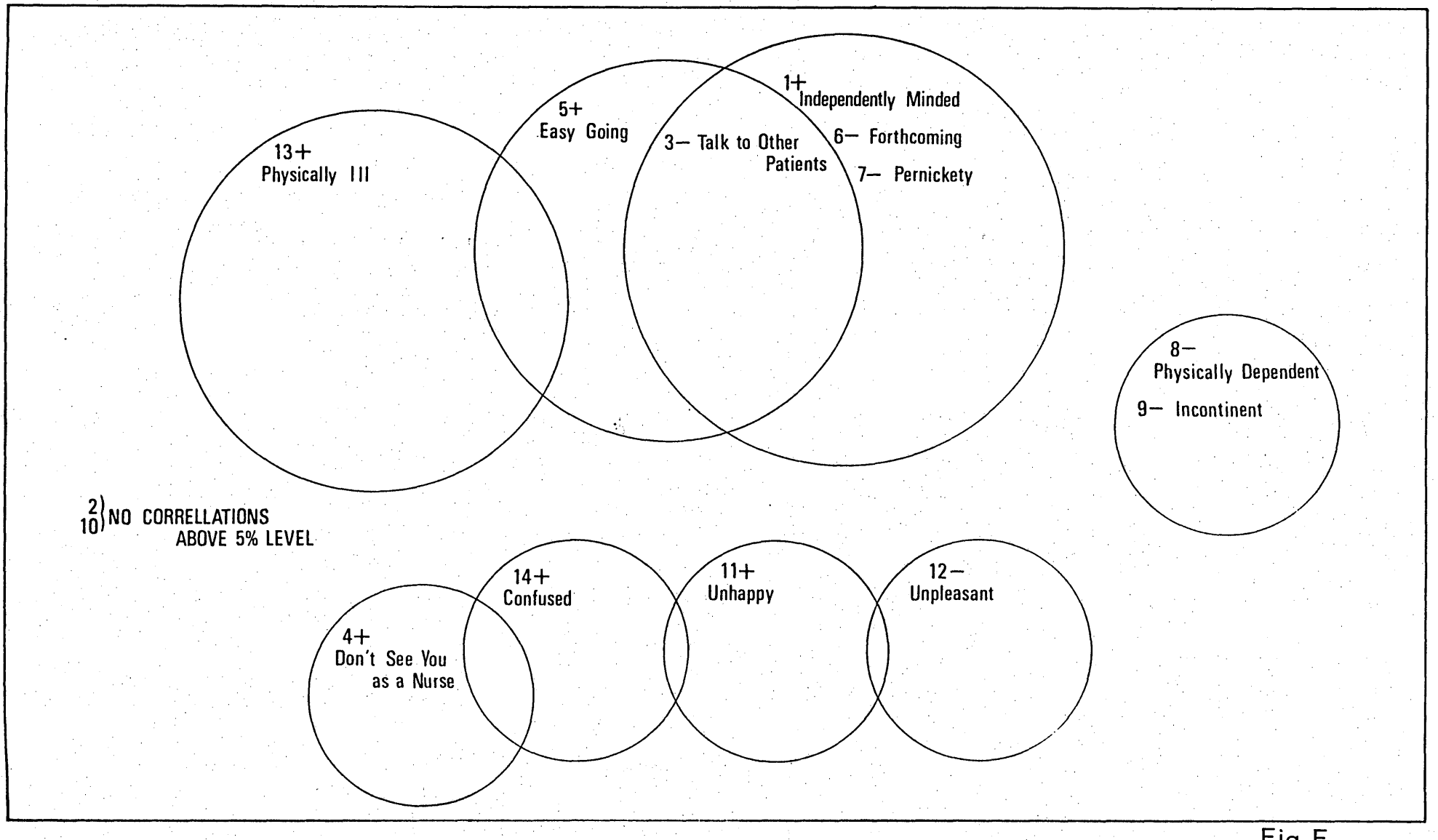

1+
Independently Minded
5+
Easy Going
3— Talk to Other
Patients
6— Forthcoming
7— Pernickety
13+
Physically Ill
8—
Physically Dependent
9— Incontinent
2
10 NO CORRELLATIONS
ABOVE 5% LEVEL
14+
Confused
11+
Unhappy
12—
Unpleasant
4+
Don't See You
as a Nurse

Fig F

construct "4" at 52%. All the original constructs having been incorporated the ordering is therefore 3,4,2, and 1. Fig G shows the result of such a method applied to the example data used in Chapter One. (Instead of "matching" scores the angular distances in Table iv were used). The constructs were ordered using the method above, with construct poles that are positively related horizontally adjacent to each other. The construct tree illustrates each "marking" and the angle this represented. Apart from not relying on the magical level of "$p < 0.05$" the method of display allows both construct poles to be charted something that is too muddling with the "set" diagram. The right hand column of construct poles may be thought of as the contrasting pattern of the left hand column. It also more accurately reflects the construct relationships - again construct "5" is displayed as being closer to construct "13" than construct "12". Fig G does not illustrate the full extent of Shaw's technique. For instance she would reform the rows of Table ii along side the relevant construct. The claimed advantage of this is that it demystifies for both the researcher and the subject what the computer has done to the data.

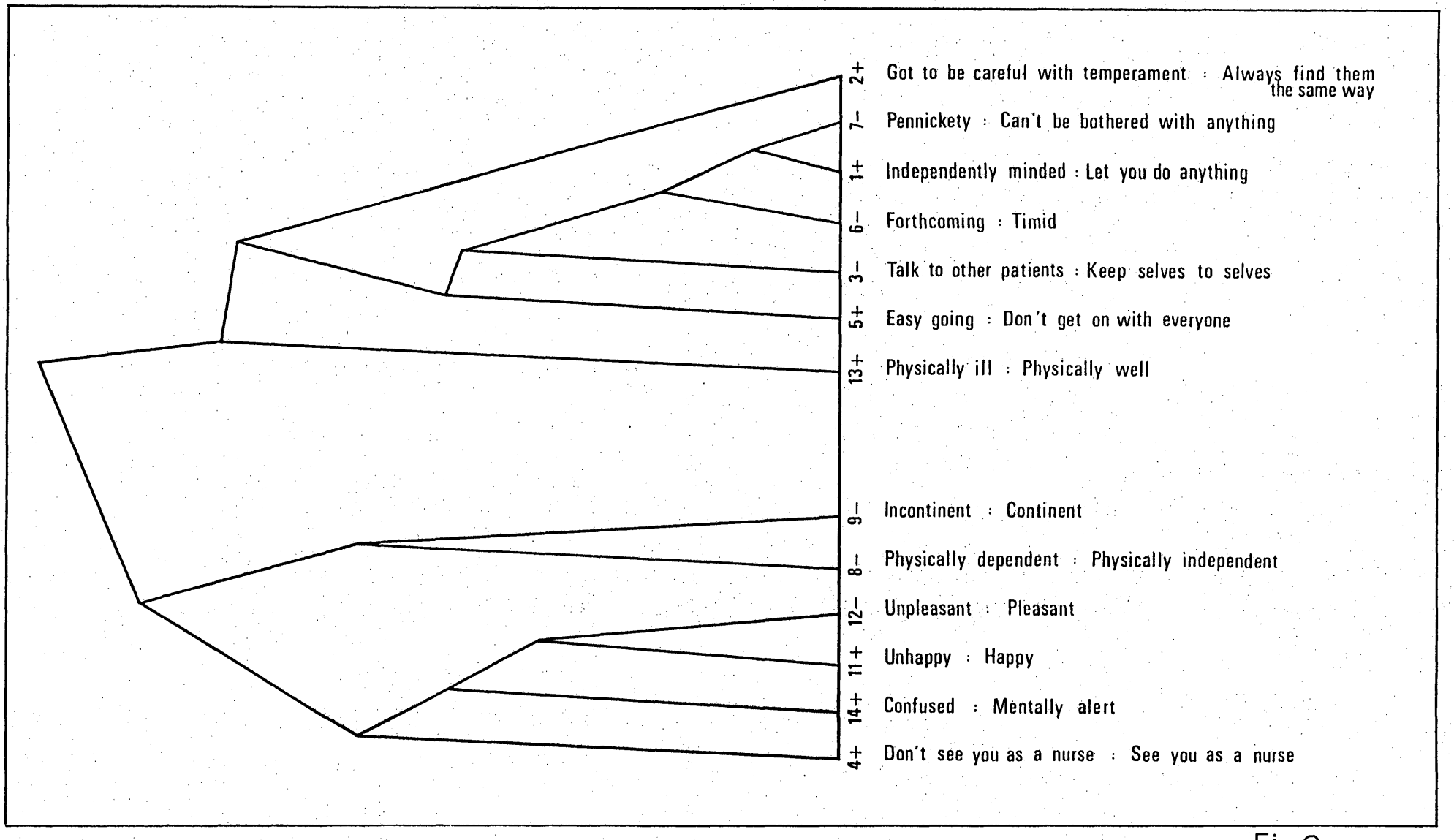

2+ Got to be careful with temperament : Always find them the same way
7– Pennickety : Can't be bothered with anything
1+ Independently minded : Let you do anything
6– Forthcoming : Timid
3– Talk to other patients : Keep selves to selves
5+ Easy going : Don't get on with everyone
13+ Physically ill : Physically well
9– Incontinent : Continent
8– Physically dependent : Physically independent
12– Unpleasant : Pleasant
11+ Unhappy : Happy
14+ Confused : Mentally alert
4+ Don't see you as a nurse : See you as a nurse

Fig G

APPENDIX D

THE STATISTICAL TESTS AND DESCRIPTIVE TECHNIQUES USED.

Three initial comments require to be made:-

a. In the research distribution free (non-parametric) statistical tests were used throughout (except in the analysis of the raw grids.) Principally this was done because it was felt that in analysing quantitative data, itself derived from a statistical technique, it might well be the case that the distribution was an artifact of the technique.

b. The terminology of the "null hypothesis" was not used, mainly because the writer felt that the use of what is in essence a double negative, is both confusing and convoluted.

c. When a result is stated to be significant at the "$p < 0.01$" or "$p < 0.05$" this is analogous to saying that the result could only have occured by chance 1% or 5% of the time. However such a result is not assumed to support a hypothesis without due consideration of what the actual data shows.

Three statistical tests were used:-

a. **The Spearman Rank Order Correlation Coefficient.**

(Rho). Rho is give by:-

$$\text{Rho} = 1 - \frac{6\ (\text{sum of } d^2)}{n^3 - n}$$

(Connolly and Sluckin 1970, page 182)

Where "n" is the number of items per ranking and "d" the difference in ranks of items per pair. Where there are tied ranks the formula is:-

$$\text{Rho} = 1 - \frac{6\ (\text{sum of } d^2 + T)}{n^3 - n}$$

Where $T = 1/2t_2 + 2t_3 + 5t_4 + 10t_6 + 28t_7$

(Where t_2 = the number of ties involving two observations and so on.) (Langley 1968, p 203).

The statistical significance of the correlation is obtained by the formula:-

$$z \text{ score} = \text{Rho } (\sqrt{N - 1})$$

Where n = the number in the sample.

(Particular values of z scores correspond to particular levels of probability i.e:-

z = 1.96 or more - "$p < 0.05$".
z = 2.58 or more - "$p < 0.01$".
(Langley, 1968, p 154.)

Finally it should be noted that the Spearman Rho, like the Pearson Product Moment correlation is a measure of linear regression. (opinion cited, Kinnear, 1971). Thus the comments regarding the use of "angular" analogues apply. (see Chapter 1, paragraph 1.32).

b. **The Wilcoxon Test.** (Also known as Wilcoxon's Signed Ranks Test). This is suitable for comparing two samples of measures that are related, as where the same individuals are assessed on two different occasions. (Connolly and Sluckin 1970, opinion cited.) This test takes into account the direction and size of change. This is done by ranking the differences regardless of the direction of change, then giving the ranks a "+" or "-" sign, and then assuming the "+" and "-" ranks. The probability of whatever the lowest total is occuring, is calculated by the formula:-

$$z \text{ score} = \frac{1/2n\,(n + 1) - 2R}{\sqrt{\frac{n\,(n + 1)\,(2n + 1)}{6}}}$$

Where R = smallest rank total, and N = number in sample. (Langley 1968, p182).

It should be noted that "n" does not include the cases where no change occured. Where there are twenty or less pairs a table of critical values may be consulted to obtain the probability levels. (For instance Connolly and Sluckin, 1970, p 196).

c. **The Sign Test.** In this test only the direction of the sign is taken into account. The probability of a chance departure from balance is obtained from the binomial distribution which in this research was obtained from the nCr key of a Texas Instrument TI 55 11 calculator.

The following descriptive statistics were used:-

a. The Arithmetic Mean. This is a measure of central tendancy, calculated by the formula M = the sum of the measurements divided by the number of measurements.
b. The Range of scores.
c. The Standard Deviation. This is a measure of dispersion about the mean. It is calculated by the formula:-

$$\text{Standard deviation} = \sqrt{(\text{sum of } X^2/N)}$$

Where X = deviation of a case from the mean,
N = total frequency (Connolly & Sluckin, 1970 p49)

d The Coefficient of skewedness. This indicates where a range of scores is biased to one side of the mean or the other.

It is calculated by the formula:-

$$\text{Coefficient of Skewedness} = \frac{3(\text{Mean}-\text{Median})}{\text{Standard Deviation}}$$

(Connolly & Sluckin 1970, p56).

(The median is the central score in the range). Positive skewedness indicates a series of scores tailing off towards the high values

(i.e. most are low values) and negative skewedness indicates the opposite.

CONSTRUCTS PROVIDED BY LEARNER NURSES IN SECOND EXPLORATORY STUDY (INCLUDING CATEGORISATIONS AND THEMES)

1 - 10 = Nurses
A = First Interview
B = Second Interview
AA = "Patients as People" - First Interview
AB = "Patients as Patients" - First Interview
BA = "Patients as People" - Second Interview
BB = "Patients as Patients" - Second Interview
O = Objective Construct
P = Psychological Construct
DEP = Dependency
COND = Condition/Treatment
PHYS = Physical
COG = Cognitive Orientation
COM = Communication
A = Affect
CONT = Control
I = Interaction
E = Ego state of nurse/Evaluation by nurse
MISC = Miscellaneous
C1 = Principal constellatory construct of combined grid (i.e. AA + AB or BA + BB)
AAC1)
ABC1) Principal constellatory constructs of subgrids
BAC1)
BBC1)

Correlations in third column are those that associate constructs in a particular subgrid to the subgrid principal constellatory construct. At the "$P < 0.05$" level.

Correlations in the fourth column are those which link any of the constructs in a particular interview to the combined grid principal constellatory construct at the "$P < 0.05$" level.

1A

AA

1	More demanding	P	CONT	0.96	0.96
2	Confused: Not Confused	P	COG		
3	Always talk about other people	P	COM	0.98	0.98
4	Gets uptight: Emotional, but cheerful	P	A		
5	Shows anger	P	A		
6	Nice Person: Two faced	P	E		
7	Very Excitable	P	A		
8	Am at ease with them	P	E		
9	Rarely show emotions	P	A	AAC1	C1
10	Can relate to them as persons: relate to them as patients	P	MISC	-0.79	-0.79

AB

11	Heavy	O	PHYS	0.67	-0.86
12	Confused: Sometimes lose the track	P	COG	BBC1	-0.67
13	Independent: Not independent	O	DEP		
14	Can hold a conversation with her: Can't..	P	COM	-0.88	
15	Never speaks	P	COM	-0.65	-0.83
16	Don't have dirty habits: has dirty habits	O	MISC	-0.82	
17	Know what they are asking for	P	COG	-0.65	0.87
18	Easier to handle	P	CONT		-0.77
19	Incontinent: Continent	O	COND	0.72	
20	Routine care everday	O	TREAT		

BA					
1	If they do not get their own way, they are then emotional about it: not so much	P	A		
2	Excitable because they cannot make themselves understood: Can make themselves understood	P	A		
3	They retaliate if they feel that wrong has been done to them: more of a quiet nature, do not need a lot of emotional care	P	A	-0.83	-0.83
4	They know what they are saying: does not speak, does not retaliate, hasn't much of a personality	P	COG	AAC1	C1
5	Gets upset if you get them into trouble: even if you are sharp with her she will laugh if off	P	A	0.72	0.72
6	Have to humour them a lot: no personality	P	A	-0.78	-0.78
7	Argue a lot: Not able to express much	P	COM		
8	Jollier personalities	P	A	0.84	0.84
9	Talkative: Psychogeriatric	P	COM		
10	Lazy	P	CONT		
BB					
11	Need more basic care: does not need as much	O	DEP		
12	Need help to change themselves: can change herself	O	DEP		
13	Can do them on one's own: need two nurses for lifting	O	DEP		
14	Incontinent: Continent	O	COND	-0.69	-0.87
15	Has difficulty with communication	P	COM		-0.89
16	Take more time: Quick to work with	O	MISC		
17	Pernickety	P	MISC	0.81	
18	Self pitying: no problem at all	P	A		0.77
19	Don't push their luck with you: attention seeking	P	CONT	0.73	
20	Mentally exhausting	P	E	BBC1	0.71

AA

1	Likes the comfort of elderly people: happy if he does not get attention	P	A	AAC1	
2	Has wild tempers: doesn't like a lot of people about him	P	A		0.77
3	Would like to go home: settle down in hospital	P	A		-0.73
4	I like them: I do not like him	P	E		-0.67
5	Shy person: not shy	P	A		
6	Friendly: Tries to rush things	P	A		
7	Homely man: Attention seeking	P	MISC	0.92	
8	Like attention: Was a nice man	P	MISC	0.83	
9	Happy on their own: Spoilt	P	A		
10	Charming: Not charming	P	A	0.89	

AB

11	Independent: Needs to petted, requires more nursing care	O	DEP	-0.87	-0.76
12	Spoilt: Very ill, illness not in his mind	P	MISC	BBC1	0.94
13	Speech not clear: Clear speech	O	COND		
14	Lack of wanting to get better: Tries	P	MISC		
15	Attention seekers: Don't see much of him at all	P	CONT	0.94	C1
16	Incontinent at times: continent	O	COND	0.88	0.82
17	Enjoy having their families about: he is 94 one can't ask for much	P	MISC		
18	Physical disabilities that are keeping them in: could do more for himself	O	COND	0.65	0.67
19	Wants to get home: Happy here	P	A	-0.83	0.82
20	Very ill men: Not so ill	O	COND		0.73

BA

1	Likes it when somebody is with him: acts it a bit	P	I	0.76	
2	Get jealous: That other people are getting more attention than they are: Doesn't mind if you are not there	P	A		0.66
3	Like to help you with their disability: bit of a pain but not a bad old stick	P	CONT		-0.92
4	Can be nasty and hit out: Knows what he wants and says what he wants	P	A		0.77
5	Like young company: Prefers to be left alone	P	I	0.73	
6	Likes the company of their families	P	I		
7	I feel sorry for both of them: I have got used to handling him	P	D		
8	Emotions: Not emotional, down to earth	P	A		
9	Like to make them laugh	P	E	AAC1	
10	Well liked people	P	E		

BB

11	Need encouragement to walk: Walks	O	DEP	0.66	
12	Ill: Well	O	COND	0.96	
13	Incontinent: Continet	O	COND		0.77
14	Likely to suffer from pressure sores	O	COND	-0.70	C1
15	Need help eating	O	DEP	-0.84	0.69
16	Confused	P	COG		
17	Not looking for attention	P	MISC	0.73	-0.86
18	On bed rest	O	TREAT	-0.95	
19	Chesty	O	COND		0.69
20	Don't need nursing care as such	O	DEP	BBC1	-0.70

AA

1	Have to talk to them to get a response: Will speak to you	P	COM	0.89	0.83
2	Up to date: Lives in the past	P	COG		
3	Inactive: Active	O	COND	-0.93	0.93
4	Not particularly ill: Ill	O	COND	0.83	0.83
5	Quiet: Will talk away to you	P	COM	-0.72	-0.72
6	Always want to go home: She has accepted that she is there	P	A	0.84	0.84
7	Very alert: Not alert	P	COG	0.95	0.95
8	Mobile: Not mobile	O	DEP	AAC1	C1
9	Lives in the present: Lives in the past	P	COG		
10	Easier to communicate with them: Not easy to communicate with them	P	COM	0.82	0.82

AB

11	Independent: Needs toileting and dressing	O	DEP	0.93	0.98
12	Long term patients: Would like to go home	O	MISC	0.83	-0.86
13	Needs to be toileted: Don't need to be toileted	O	DEP	0.81	-0.81
14	Feed themselves: Don't feed themselves	O	DEP	0.95	0.95
15	Need assistance in getting up: capable of everything	O	DEP	BBC1	-0.98
16	Ill: Not ill	O	COND	0.81	-0.87
17	Fat: Thin	O	PHYS		
18	Lazy: Not lazy	P	CONT	0.70	
19	Less active: Active	O	COND	0.83	-0.88
20	Want do very much for themselves: Will do a lot for herself	P	CONT	0.82	0.82

BA

1	Quite aware of their circumstances, know that they are in hospital: Content to sit in own wee world all day	P	COG	-0.82	-0.69
2	Motherly: Don't care	P	A	-0.65	-0.73
3	Lethargic in their nature: Always wanting to do something	P	A	0.87	-0.90
4	Have lost their modesty: Modest	P	MISC		
5	Can't be bothered: Fastidious	P	CONT	-0.75	-0.84
6	Fall into ward routine: Drives the nurses batty	P	MISC	-0.93	0.97
7	Both got their character: Like a zombie	P	MISC	-0.89	-0.90
8	More demanding	P	CONT		
9	Less bother: A bother	P	E		
10	Never see them getting out: Trying to get herself home	O	MISC	AAC1	0.93

BB

11	Don't need as much attention: Need a lot of attention	O	DEP	-0.90	C1
12	Can't walk: Can walk with help	O	DEP	-0.70	0.90
13	Doesn't like being touched	P	CONT		
14	Heavy: Thin	O	PHYS	-0.67	
15	Can hold a conversation: Can't hold a conversation	P	COM		-0.67
16	Eats well	O	COND		
17	Always thinking that they are going home or that they are at home: Accepting	P	COG		
18	Only move if you force them: Active	P	MISC	-0.99	0.89
19	Can't dress or wash themselves: Can do practically everything	O	DEP	-0.94	0.77
20	Will try: Fat and heavy	P	CONT	BBC1	-0.90

AA

1	Goes where the conversation is: Cannot go where the conversation is	P	COM		-0.76
2	Like attention: Do not like attention so much	P	CONT	-0.73	
3	Am sure of what they are talking about: Am not	P	COM	0.79	-0.74
4	Pleased that you are doing something for them: Do not show this so much	P	A	-0.89	0.65
5	Happy: Never seen her smile	P	A		
6	Quiet and polite: Loud	P	MISC		
7	Likes to do things for hereself: in the past	P	MISC	AAC1	-0.69
8	Undemanding	P	CONT		
9	Aware of what is going on around her	P	COG	0.73	-0.84
10	Like you to sit and talk to them	P	I	-0.76	

AB

11	Can ask to go to the toilet: has to be toileted	O	DEP	ABC1	-0.94
12	Can not walk: Can walk with a little assistance	O	DEP	-0.73	-0.70
13	Talkative to staff: Quiet	P	CON	0.65	
14	Can feed themselves: Needs help with feeding	O	DEP	0.72	-0.70
15	Noisier	P	MISC		
16	Dependent: Independent	O	DEP	-0.94	C1
17	Not confused: Confused	P	COG	0.76	-0.78
18	Need less rest	O	MISC	0.97	-0.93
19	Normal	P	MISC	0.77	-0.73
20	Will ask you for things	P	COM	0.81	-0.68

BA

1	A "smiler"	P	A	AAC1	
2	Would like you to come and talk to her	P	I		
3	Frustrated	P	A		
4	Will start a conversation	P	COM		0.66
5	Frightened	P	A	-0.71	
6	Quiet	P	A		
7	Thanks you	P	A		
8	Wants to go home	P	A	0.65	
9	Gets bored	P	A		
10	Will ask you qestions	P	COM		

BB

11	Gets about	O	DEP	0.87	0.87
12	Can feed themselves	O	DEP	0.67	0.67
13	Have to be toileted	O	DEP	-0.92	-0.92
14	Confused	P	COG		
15	Have to be dressed	O	DEP	-0.67	-0.67
16	Overweight	O	COND		
17	Gets tired	O	COND	-0.90	-0.90
18	Ill	O	COND	-0.72	-0.72
19	Walks	O	COND		
20	Independent	O	DEP	BBC1	C1

AA

1	All there: vacant	P	COG	-0.93	0.82
2	Can't dress themselves: need a we bit of help	O	DEP	0.72	
3	Try to attract attention	P	CONT		
4	Takes a while for anything to sink in: disturbed	P	COG	0.84	-0.84
5	Don't get about: Independent	O	DEP		-0.79
6	Not interested in current news items: is.....	P	COG	AAC1	-0.90
7	Content with their life: Weepy	P	A	0.82	-0.87
8	Jump from one thing to another, talk about odd things: Usually normal, ill at present	P	COG	0.84	0.83
9	Not able to mix: Mixes interested in everybody	P	I	0.73	0.83
10	Asks a lot of questions and talks: Quiet	P	COM	-0.87	

AB

11	Need more physiotherapy: Doesn't....	O	TREAT		
12	Understand what you want them to do: Vague	P	COG	-0.88	0.88
13	Feed themselves: Need feeding	O	DEP	BBC1	C1
14	Eat a lot: Don't eat a lot	O	DEP		
15	Ask to go to the toilet: Don't ask	O	DEP	0.99	0.99
16	Can't do anything for themselves	O	DEP	-0.78	-0.78
17	Don't get about at all: Mobile	O	DEP	-0.65	-0.65
18	Ask for what they want: Don't ask....	P	COG	0.99	0.99
19	Incontinent: Continent	O	COND		
20	Get out for fresh air: Never get out	O	MISC	0.94	0.94

BA

1	Talkative: Doesn't talk at all unless you talk to her	P	COM	0.94	0.94
2	Shout a lot (about silly things): Just normal	P	MISC		
3	All there: Not all there	P	COG	0.92	0.92
4	Don't get about: Do get about	0	MISC	-0.70	-0.70
5	Visitors more regular: Doesn't have visitors regularly	0	MISC	0.70	0.70
6	Emotional	P	A		
7	Puts is on when it pleases her	P	MISC		
8	Lazy: Not lazy	P	CONT		
9	Ask about things on the news: Unaware of everything going on	P	COG	AAC1	C1
10	Not as independent: manages to get on, on her own	0	DEP	-0.96	-0.96

BB

11	Needed to be dressed: Independent	0	DEP	-0.67	
12	Ask for things: Unaware of anything that is going on	P	COG	BBC1	0.99
13	Need to encourage them to eat: Eat well	0	DEP	-0.81	-0.82
14	If you ask them to do something might do it	P	CONT	0.86	0.87
15	Co-operative: Unco-operative	P	CONT	0.83	0.82
16	Obese	0	PHYS		
17	Converse if you talk to them: Frighten them	P	COM	0.89	0.88
18	Ill: Not ill	0	PHYS		
19	Sits up: Doesn't sit up	0	MISC	-0.90	-0.92
20	Incontinent: Continent	0	COND	-0.96	-0.94

AA

1	Get on well with them: Don't....	P	E		
2	Hard to motivate: More easily motivated	P	CONT		0.76
3	Both never bother you: Vocal	P	CONT		
4	Ill: Not so ill	O	COND	-0.82	-0.76
5	Do not trouble you if it is not necessary	P	CONT		
6	Independent: Would rather have things done for him than do it himself	O	DEP	0.83	0.89
7	Hot tempered: Quiet	P	A		
8	Both had a stroke, one making more progress: no reason why he should not get out	O	COND	AAC1	0.87
9	Aware of surroundings: Not aware of surroundings	P	COG	0.87	0.76
10	Able to communicate: Not able to communicate	P	COM	AAC1	0.87

AB

11	Don't require that much nursing care: Require a lot of nursing care	O	DEP	BBC1	C1
12	Don't have to motivate them much: Do...	P	CONT	0.82	0.82
13	Incontinent: Continent	O	COND	-0.81	-0.81
14	Physically disabled: Not disabled	O	COND	-0.66	-0.66
15	Confused: Not confused	P	COG	-0.66	-0.66
16	Can walk without assistance: Needs assistance to walk	O	DEP		
17	Shouldn't be here	O	MISC	0.88	0.88
18	Not aware of surroundings: Aware of surroundings	P	COG	-0.72	-0.72
19	Just here because of the ageing process: Not here because of the ageing process	O	COND		
20	Noisy: Quiet	P	MISC		

BA

1	Aggressive to staff (resists physical contact): Not aggressive	P	A		
2	Quiet, co-operative: Noisy	P	CONT	0.67	
3	Confused: Alert, aware of where he is and what is happening to him	P	COG	-0.71	
4	Resigned to being long term: would rather be at home	P	MISC		
5	Ill: Nothing physically wrong with him	O	COND		
6	Personality not clear: Personality clear	P	MISC	-0.77	
7	I get on well with them: Difficult to know how you get on with him	P	E	0.84	
8	Can both converse with the staff: Can't communicate his wishes	P	COM	0.71	
9	Co-operative	P	CONT	AAC1	
10	Both want to die: Don't want to die	P	MISC		

BB

11	Require more nursing care: On verge of returing home	O	DEP	0.93	0.93
12	Incontinent: Continent	O	COND	-0.86	-0.86
13	Up and about: On bed rest	O	COND	BBC1	C1
14	Not happy with the circumstances that they are in	P	A		
15	Don't communicate with the patients and staff: Communicate	P	COM		
16	Aware of his surroundings	P	COG		
17	Require to be fed	O	DEP	-0.90	-0.90
18	Have done least for him	O	DEP	0.98	0.98
19	Mobile: Immobile	O	COND	0.88	0.88
20	Bedridden	O	COND	-0.94	-0.94

AA

1	Not talkative: Talkative	P	COM	AAC1	-0.96
2	Will tell you what to do: Will let you do what you wish to	P	CONT	0.98	
3	Do not laugh very much: Laugh	P	A		-0.98
4	Emotional: Normal	P	A		
5	Won't start a conversation: Will....	P	COM	AAC1	-0.96
6	Never confused: Confused	P	COG	0.77	0.83
7	Even tempered: Quick with you	P	A		
8	More patient	P	A		
9	Try to help herself	P	CONT	0.96	C1
10	Prone to depression: Bright	P	A		

AB

11	Need help walking: Can walk	O	DEP		
12	Can do mostly for themselves: Have to like them	O	DEP	BBC1	0.98
13	Continent (most of the time) sometimes incontinent	O	COND	0.98	0.93
14	Can get up and get dressed: Must help her	O	DEP		
15	Paralysed: Can walk	O	COND	-0.75	0.99
16	Ill: Less ill	O	COND	0.86	-0.93
17	Always up: In bed	O	COND	0.93	0.96
18	Feeds herself	O	DEP	0.79	0.78
19	Can start a conversation: Doesn't try to start a conversation	P	COM	0.79	0.78
20	Noisy	P	MISC	-0.96	-0.97

BA

1	Easy going, don't complain: Hypochondraic always complaining	P	A	AAC1	
2	Calm: Get excited and nervous	P	A		
3	Talkative: Quiet	P	MISC		0.71
4	Likes anybody's company: Don't mind being alone	P	I		
5	Good sense of humour: Hasn't....	P	A		0.81
6	Short tempered: Good tempered	P	MISC		
7	Demanding, as soon as you walk out the room they want something	P	CONT	-0.78	
8	Noisy: Quiet	P	MISC	-0.79	
9	Polite: Cheeky	P	I	0.69	
10	Will start a conversation: Won't	P	COM		0.96

BB

11	Confused: Knows what she is talking about	P	COG		
12	Walks: In a wheelchair	O	COND		
13	Can see: Cannot	O	COND		
14	Both have C.V.A.'s: Don't	O	COND		
15	Continent: Incontinent	O	COND	BBC1	0.86
16	Feed themselves: Cannot....	O	DEP		0.86
17	Wash themselves: Cannot....	O	DEP	0.86	C1
18	Dress themselves	O	DEP	0.89	0.99
19	Heavy in bed (especially when getting her onto a bed pan)	O	PHYS		-0.78
20	Have to help them to the toilet: Don't	O	DEP	-0.78	-0.66

AA

1	Can hold a conversation with them: Cant't hold a conversation	P	COM	0.76	
2	Have difficulty with their speech: Speech clear	0	COND	-0.70	
3	Can ask about their family and background	P	COM	0.68	
4	Some degree of paralysis	0	COND		
5	Can get themselves about: Can't	0	DEP	0.96	
6	Can manage to do most things themselves: Can't	0	DEP	AAC1	C1
7	Don't say very much: Chat away	P	COM	-0.71	
8	Mixes with other patients: Happy on his own	P	I	0.90	
9	Can get angry: Can do anything to him	P	A		
10	Neither likes to be up and about: Likes to be up and about	P	PER	-0.68	

AB

11	Need to keep you eyes on them: Independent	0	DEP	-0.83	0.87
12	Up and about: Always in bed	0	MISC	ABC1	0.90
13	Continent: Incontinent	0	COND	0.91	0.89
14	Can't walk: Can do more or less anything	0	DEP		
15	Ill: Well	0	COND	0.68	0.80
16	Can't feed themselves: Can feed themselves	0	DEP	-0.97	-0.93
17	Both Can dress themselves: Can't dress	0	DEP		0.78
18	Can get about: Can't get about	0	DEP	0.96	0.91
19	Ask for toilet: Don't ask	0	MISC	0.78	0.82
20	Can talk to him: Can't talk to him	P	COM	0.83	0.81

BA

1	Will sit all day: Talks to anybody	P	COM	-0.86	0.82
2	Needs encouragement to do anything: Gets on on his own	P	CONT	0.76	-0.80
3	Gets on with patients around him: Doesn't speak to thosw around him	P	I		
4	Both have a speech defect, and get frustrated	P	COM	-0.79	-0.82
5	Talk about their families: Don't talk about their families	P	COM		
6	Both have got their wits about them: Confused	P	COG	BAC1	-0.84
7	Can't have a conversation with them: Hasn't any difficulty in communicating	P	COM	-0.75	
8	Cheerful: Miserable	P	A		
9	Aggressive: Not aggressive	P	A		
10	Have visitors: Don't have visitors	O	MISC		

BB

11	Both feed themselves: Have got to do everything for him	O	DEP	0.88	C1
12	Ill	O	COND	-0.75	-0.66
13	One does what you think needs done: Can tell what he wants	P	COG	-0.79	-0.95
14	Have to take them to toilet	O	DEP		
15	Can't walk: Confined to bed all day	O	COND		
16	Incontinent	O	COND	-0.88	-0.92
17	In pain	O	COND		
18	Prone to pressure sores	O	COND		
19	Some degree of paralysis	O	COND		
20	Dependent	O	COND	BBC1	-0.88

AA

1	Accept having things done for them: Doesn't like being disturbed	P	CONT	0.66	0.81
2	Confused: Alert	P	COG		0.81
3	Excitable: Not excitable	P	A		
4	Peaceful: Aggressive	P	A	-0.82	-0.70
5	Thankful for what you do for them: Not thankful	P	MISC	AAC1	0.69
6	Hoping that he will not get home: Hoping that he will get home	P	A		
7	Want to get on a bit: Willing to stay in a wheelchair	P	CONT		
8	Pleasant: Grumpy	P	A	0.86	
9	Predictable: Changeable	P	A	0.82	
10	Draw attention to themselves: Stays in background	P	CONT		

AB

11	Up most of the time: A bed patient	O	COND	-0.77	0.72
12	Cannot walk: Can walk	O	COND	0.79	0.82
13	Can have a conversation with them: Can't..	P	COM		
14	Both blind: Not blind	O	COND		
15	Do not get around themselves: Do	O	DEP	ABC1	0.71
16	Clear speech: Has a speech defect	O	COM	-0.78	-0.69
17	Very confused at times: Alert	P	COG		
18	Likes to get up: Nursed in bed	O	COND	-0.93	
19	(One) iller	O	COND	0.71	C1
20	Feed themselves: Do not feed themselves	O	DEP		

BA

1	Aggresive: Quiet	P	A		
2	Seeks attention: Don't bother	P	CONT		
3	Anxious: Don't get worried	P	A		
4	Emotional: Can stand up for themselves	P	A		
5	Confused: Can talk to them	P	COG		
6	Pleasant	P	E	ABC1	
7	Institutional: Will tell you what they want done	P	CONT		
7	Easy to communicate with: Hard to communicate with	P	COM		
9	Always doing something: Sits about	P	COM		0.72
10	Always talking about going home	P	MISC		0.90

BB

11	Good eyesight: Blind	O	COND		
12	Incontinent	O	COND		
13	Up out of their beds: Not up out of their beds	O	COND	0.79	0.79
14	Feed themselves	O	DEP	BBC1	C1
15	Quite alert: Confused	P	COG		
16	Require special diets: require ordinary diets	O	TREAT		
17	Can walk with assistance: Can't walk at all	O	DEP		
18	Have to watch the way we dress him	O	MISC	-0.72	-0.72
19	Takes care of his own hygiene	O	DEP	0.88	0.88
20	Ill: Well	O	COND	-0.69	-0.69

AA

1	Compos Mentis, rational: Without her faculties	P	COG	-0.88	0.89
2	Have their sight: Totally blind	O	COND	-0.69	0.69
3	Dependant on nurse: Independant	O	DEP	AAC1	-0.95
4	Will have a conversation: Doesn't speak	P	COM	-0.95	C1
5	Continent: Incontinent	O	COND	0.80	0.79
6	Mobile: Need two nurses to get them about	O	DEP	-0.70	
7	Aggressive: Not aggressive	P	A	0.80	-0.78
8	Gossip	P	MISC	-0.87	0.91
9	Religious	P	MISC	-0.67	0.75
10	Fat: Slim	O	PHYS		

AB

11	Continent: Usually incontinent	O	COND	0.91	0.94
12	Can eat their meals alright: Have to give everything to her	O	DEP	ABC1	0.87
13	Have to be taken to bed: Will tell you when she goes to bed	O	DEP	-0.89	-0.86
14	Have to take them everywhere: (Has a Zimmer) will go about well	O	DEP	-0.91	-0.90
15	Have to check whether they are wet: Will ask for help	O	COND	-0.91	-0.92
16	Don't need to watch what they eat: On a diet	O	TREAT		
17	More prone to pressure sores: Not prone to pressure sores	O	COND	-0.68	-0.68
18	Will let themselves become constipated: Will ask for aperients	O	COND	-0.69	-0.79
19	Needs to be cheered up: Don't know where they are	P		0.80	0.74
20	Both need exercises: Doesn't need exercises	O	TREAT	-0.71	

BA

1	Not obese: Obese	O	COND		
2	Confined to a wheel chair: Can walk with a zimmer	O	COND		-0.70
3	Confused, disorientated: Alright	P	COG	-0.96	0.70
4	Good eye sight: Blind	O	COND		-0.70
5	Can speak: don't speak to you at all	P	COM	BAC1	-0.74
6	Continent: Incontinent	O	COND	0.83	-0.87
7	Independent: Dependent	O	DEP	0.92	-0.88
8	Well made: Skinny	O	PHYS		
9	Tall: Small	O	PHYS		
10	Huffy	P	MISC		

BB

11	Have to take them to the toilet: Will ask	O	DEP	BBC1	0.98
12	Need to lift them: Don't....	O	DEP	0.97	C1
13	Everything has to be put into her hand: Can leave things down	O	DEP	0.71	0.65
14	Has to be put into bed: Go to bed by themselves	O	DEP	0.76	0.66
15	Need bedsides to be put up: Don't....	O	TREAT		
16	Drink fluids well: Fluids need pushing	O	TREAT	-0.72	-0.72
17	Have to watch what food you give her	O	MISC		
18	Gossipy: Friendlier	P	A		
19	Stay up: Have to put her into bed	O	DEP	-0.68	-0.70
20	Have to sit down and tell them where they are	P	COG		

APPENDIX F

Spread of learner nurses over hospitals and wards.

	Female Wards	Male Wards	Mixed Wards
Hospital A	3 nurses	5 nurses	
B	11 nurses		
C		1 nurse	
D	2 nurses	3 nurses	
E	4 nurses	1 nurse	2 nurses

APPENDIX G

SAMPLE OF LETTER TO LEARNER NURSE

The Dept; of Nursing Studies,
The University,
Glasgow G12 8QQ.

Dear Nurse,

I am writing to enquire as to whether you would be willing to be interviewed twice as part of some research I am doing in the course of an S.H.H.D. Nurse Research Training Fellowship. The concern of the interviews will be your personal perception of the patients you are nursing, and how this may change over your time on the ward.

Permission to approach you has been obtained from Miss A (Director of Education), and Miss B (Divisional Nursing Officer). The exercise is completely voluntary and takes place in working hours. I would be very grateful if you could complete the reply slip below (whatever your answer), and return it in the enclosed stamped addressed envelope.

Yours sincerely,

David Kerr

****

PLEASE CIRCLE WHICH APPLIES

I am willing

to be interviewed.

I am not willing

Signed .....

Ward .....

Constructs provided by learner nurses in main study (including thematic analysis)

Key:-

+ = Emergent Pole
- = Implicit Pole

A	+	-	
1	Independently minded	Lets you do anything	Co-operative
2	Got to be careful with temperament	Always find them the same way	Prediction
3	Keep selves to selves	Talk to other patients	Interaction
4	Don't see you as a nurse	See you as a nurse	Miscellaneous
5	Easy going	Don't get on with everyone	Interaction
6	Timid	Forthcoming	Affect
7	Can't be bothered with anything	Pernickity	Miscellaneous

B			
1	Put up with things	Complain	Complaining
2	Talk	Doesn't talk	Interaction
3	Demanding	Submissive	Demanding
4	Doesn't mix	Mixes	Interaction
5	Need to be encouraged	Keen	Miscellaneous
6	Dreamy	Alert	Affect
7	Tense	Relaxed	Affect

C			
1	Sit with other patients	Will stay by themselves	Interaction
2	Would rather people do things for them	Do things for themselves	Miscellaneous
3	Easy to get on with	Hard to relate to	Interaction
4	Patient	If ask for anything, want it here and now	Affect
5	Demanding	Someone who isn't shouting for you every 5 mins	Demanding
6	Talk with you	Got to talk to them	Interaction
7	Aggressive	Someone who doesn't lash out	Aggressive

1	Outgoing	Someone who doesn't voice their thoughts	Interaction
2	Can have a conversation with her	Can't have a conversation with her	Interaction
3	Co-operative	Have to fight for them to do something	Co-operative
4	Passive	Aggressive	Aggressive
5	complaining	Don't complain	Complaining
6	Make more effort to be cheerful	Depressed	Affect
7	Accept things	Don't accept things	Co-operative
E			
1	Shy	Forward	Interaction
2	Communicates fine with staff	Keeps himself to himself	Interaction
3	Never complain	Grumpy	Complain
4	Don't like to mix	Like to mix	Interaction
5	Demanding	Never ask for anything	Demanding
6	Good humoured	Cross	Affect
7	Doesn't hold a conversation with other men	Hold a conversation with other men	Interaction
F			
1	Bedridden	Active	Objective
2	Talkative	Doesn't say much	Interaction
3	Helpful	Awkward	Co-operative
4	Quiet	Noisy	Interaction (Quiet)
5	Like a lot of attention	Doesn't like a lot of attention	Miscellaneous
6	More able to fend for themselves	Need time and patience	Miscellaneous
7	Abrupt	Pleasant	Miscellaneous

G	+	−	
1	Can communicate	Can't communicate	Interaction (Communication)
2	Demanding	Will ask only when need it	Demanding
3	Gets on with other patients	Doesn't get on with other patients	Interaction
4	Tries	Someone who has to it into their head that they can't do anything	Co-operative
5	Shout back at you	Accept what you are going to do	Co-operative
6	Aggressive	Quiet natured	Aggressive
7	Don't have confidence in themselves	Feel confident	Affect

H			
1	Demanding	Unwilling to ask you for anything even if they need it	Demanding
2	Appreciate	Unappreciative	Miscellaneous
3	Uncommunicative	Communicative	Interaction
4	Aggressive	Unaggressive	Aggressive
5	Friendly	Sullen	Affect
6	Aware of people around them	Self centred	Miscellaneous
7	Intolerant of patients around them	Tolerant of patients around them	Affect

I			
1	Like to have things their own special way	Not fussy	Co-operative
2	Agressive	Quiet	Aggressive
3	Observant	Not interested	Cognitive Or ientation
4	Can have a conversation with them	Shy	Interaction
5	Demanding	Undemanding	Demanding
6	Jokes with you	Moody	Interaction
7	Grateful	Ungrateful	Affect

1	Demanding (mentally)	Not demanding (mentally)	Demanding
2	Can communciate	Can't communicate	Interaction (Communication)
3	Can have a conversation with her	Can't have a conversation with her	Interaction
4	Emotional	Level	Affect
5	Need encouragement to do things	Mentally dependent	Miscellaneous
6	Shows that she's unhappy	Keeps feelings to herself	Affect
7	Has had her own way in life	Someone used to doing things for others	Miscellaneous

K

1	Difficult to communicate with	Can carry on a good conversation	Interaction
2	Bright	Sad expression	Affect
3	Complains	Satisfied with lot in life	Complain
4	A trier	Given up	Miscellaneous
5	Quiet	Extrovert	Interaction
6	Meticulous	Careless	Miscellaneous
7	Need patience with	Someone you think you understand better	Miscellaneous

L

1	Can speak to them	Can't communicate with them	Interaction
2	Don't realise they are in hospital	Know there is something else other than hospital	Cognitive Orientation
3	Outgoing	Self contained	Interaction
4	Interested in what is going on outside	Withdrawn	Cognitive Orientation
5	Quiet	Noisy	Interaction (Quiet)
6	Do something	Just sit all day	Miscellaneous
7	Moody	Open	Affect

1	Attention seeking	Not attention seeking	Miscellaneous
2	Good personality	Bad personality	Miscellaneous
3	Lazy	Do things for themselves	Miscellaneous
4	Can say what she is like	Can't say what she is like	Miscellaneous
5	Independently minded	Dependent	Miscellaneous
6	Disruptive personality	Quiet	Interaction
7	Can get a good conversation from her	Can't get a good conversation from her	Interaction

N

1	Aggressive	Pleasant	Aggressive
2	Like them	Don't like them	Miscellaneous
3	Take fits of crying	Don't take fits of depression	Affect
4	Dirty man	Clean habits	Miscellaneous
5	Fed up with being in hospital	Hospitalised	Affect
6	Uncomplaining	Complaining	Complain
7	Noisy	Quiet	Interaction (Quiet)

O

1	Can communicate	Can't communicate	Interaction (Communication)
2	Accept their illness	Frustrated	Affect
3	Agitated	Calm	Affect
4	Spoiled	Doesn't demand too much	Demanding
5	Happy to take ones word	Questions everything	Co-operative
6	Gets nasty when crossed	Placid	Affect
7	Has mood swings	Clear cut	Prediction

1	Complacent	Someone who argues	Co-operative
2	Friendly	Unfriendly	
3	Reasonable	Unreasonable	Miscellaneous
4	Agitated	Calm	Affect
5	Demanding	Undemanding	Demanding
6	Changeable	Unchangeable	Miscellaneous
7	Don't get to know as well	Tend to establish a relationship with	Interaction

Q

1	Not easy to talk to	Easy to talk to	Interaction
2	Placid	Aggressive	Aggressive
3	Have let themselves go	Haven't let themselves go	Miscellaneous
4	Do what they are told	Don't do what they are told	Co-operative
5	Frustrated by illness	Accept illness	Affect
6	Demanding	Willing to do things for themselves	Affect
7	Nervous	Relaxed	Affect

R

1	Aggressive	Passive	Aggressive
2	Demand a lot of attention	Got to ask him if everything alright	Demanding
3	Can communicate	Can't communicate	Interaction (Communication)
4	Lazy	Active	Affect
5	Excitable	Lethargic	Affect
6	Accept what they are told	Mind of his own	Co-operative
7	Nervous	Calm	Affect

1	Aggressive	Calm	Aggressive
2	Demanding	Patient	Demanding
3	Outgoing	Keeps self to self	Interaction
4	Interested in other Patients	Not interested in other patients	Interaction
5	Can have a conversation with them	Cannot have a conversation with them	Interaction
6	Complain	Don't complain	Complain
7	Noisy	Quiet	Interaction

T

1	Won't get her to talk unless you seek conversation	Will talk to you	Interaction
2	Try to do something for selves	Happy to sit back	Miscellaneous
3	Demanding	Easy going	Demanding
4	Like attention	Independent minded	Miscellaneous
5	Tend to play up	Wont say if there is anything wrong	Miscellaneous
6	Complain	Uncomplaining	Complaining
7	Mixes	Doesn't mix	Interaction

U

1	Dignified	Ignorantly behaved	Miscellaneous
2	Demanding	Does as much for self as possible	Demanding
3	Intelligent	Stupid	Cognitive Orientation
4	Quiet	Noisy	Interaction
5	Worrier	Carefree	Affect
6	Something to live for	Doesn't have any aims	Miscellaneous
7	Non communicative physically	Affectionate	Interaction

	+	−	
1	Cannot communicate	Can Communicate	Interaction (Communication)
2	Seek attention	Aloof	Interaction
3	Take part in everything	Don't take part in everything	Interaction
4	Difficult to get to know	Easy to get to know	Prediction
5	Quiet	Noisy	
6	Agitated	Happy go lucky	Affect
7	Close family	Little family participation	Miscellaneous
W			
1	Quiet	Outgoing	Interaction (Quiet)
2	Want attention	Don't want attention	Interaction
3	Has a good sense of humour	Cracks jokes	Miscellaneous
4	Can't be bothered	Someone who tries to do things for selves	Co-operative
5	Can communicate	Can't communicate	Interaction (Communication)
6	Got her own mind	Will do what they are told	Co-operate
7	Will take tablets	Won't take tablets	Co-operative
X			
1	Intelligent	Thick	Cognitive Orientation
2	Flat	Active	Affect
3	Aggressive	Passive	Aggressive
4	Can hold a conversation with them	Can't hold a conversation with them	Interaction
6	Sit and cry about illness	Determined	Miscellaneous
7	Has self respect has been well off	Will sit with nothing on not luck with money	Miscellaneous

1	Can talk to us	Unable to communicate with us	Interaction (Communication)
2	Have personalities of their own	Hasn't a character	Miscellaneous
3	Anxious	Content	Affect
4	Hard to understand	Easy to understand	Prediction
5	Quiet	Noisy	Interaction (Quiet)
6	Aggressive	Placid	Aggressive
7	Demanding	Accept what there is for them	Demanding

Z

1	Introvert	Outgoing	Interaction
2	Do what you want them to do	Won't do what you want them to do	Co-operative
3	Demanding	Sorry to trouble you	Demanding
4	Aggressive	Passive	Aggressive
5	Appreciates	Someone who looks for faults	Miscellaneous
6	Talk polite	Talk slang	Miscellaneous
7	Like to help themselves	Lacks incentive to help themselves	Miscellaneous

AA

1	Timid	Aggressive	Aggressive
2	Polite	Impolite	Interaction
3	Look for attention	Never bother you at all	Miscellaneous
4	Always want you to go and hold their hands	Reject you	Miscellaneous
5	Overactive	Lazy	Miscellaneous
6	Can't express herself	Can express herself	Interaction (Communication)
7	Stubborn	Co-operative	Co-operative

1	Timid	Confident	Affect
2	Quiet	Loud	Interaction (Quiet)
3	Can relate to them in conversation	Ignore a friendly approach	Interaction
4	Want to get better and go home	Negative	
5	Keep to themselves	Integrated	Interaction
6	Demanding	Unselfish	Demanding
7	Institutionalised	Adapt easily	Miscellaneous

AC

1	Hospitalised	Treats the ward as her home	Miscellaneous
2	Stubborn	Co-operative	Co-operative
3	Quiet	Loud	Interaction
4	Determined to get better	Not bothered	Miscellaneous
5	Respond when complemented	Don't respond when complemented	Interaction
6	Nearly impossible to have a conversation with her	Can have a conversation with her	Interaction
7	Don't see her personality	Can see her personality	Miscellaneous

AD

1	Do the same thing day in, day out	Don't have a set pattern	Prediction
2	Very talkative in a crowd	Reserved in a crowd	Interaction
3	Help you	Don't want to help you	Co-operative
4	Jokey	Serious	Affect
5	Active	Like to relax	Affect
6	Out spoken	Shy	Interaction
7	Interested in what is going on in ward	Not interested in what is going on	Cognitive Orientation

1	Talk	Sit and stare	Interaction
2	Demanding	Not demanding	Demanding
3	Keen to get on	Disinterested	Co-operative
4	Coherent	Difficulty in explaining self	Interaction (Communication)
5	Agitated	Calm	Affect
6	Intelligent	Dim witted	Cognitive Orientation
7	Likes company	A recluse	Interaction

AF

1	Only talk when they are prompted	More talkative	Interaction
2	Demanding	Someone who is content to sit and be quiet	Demanding
3	Pleasant to talk to	Can't have a conversation with them	Interaction
4	A right character	Not outgoing	Interaction
5	More reachable	Someone you can't get through to	Interaction
6	If you took them out of the ward their whole world would collapse	Would be happy at home with proper care	Miscellaneous
7	Personality restricted by handicap	Personality not restricted by handicap	Miscellaneous

APPENDIX I

Tables xviii

xix

xxiii b-g

TABLE XVIII

CORRELATIONS AND ANGULAR DISTANCES BETWEEN CONSTRUCTS 1ST INTERVIEW, NURSE O

Construct 1												
2	0.372	68.18	3	-0.307	107.85	4	0.201	78.41	5	-0.592	126.31	6	0.014	89.18
7	0.052	87.01	8	-0.402	113.69	9	-0.482	118.79	10	-0.199	101.47	11	0.206	78.11
12	0.018	88.95	13	0.107	83.85	14	0.139	82.03						
Construct 2														
3	-0.855	148.80	4	-0.105	96.04	5	-0.019	91.06	6	-0.326	109.00	7	-0.375	112.04
8	-0.174	100.03	9	-0.108	96.22	10	0.103	84.10	11	0.283	73.58	12	0.302	72.40
13	0.121	83.04	14	-0.130	97.45									
Construct 3														
4	-0.052	92.95	5	-0.009	90.52	6	0.198	78.56	7	0.414	65.57	8	0.373	68.07
9	-0.053	93.04	10	-0.245	104.20	11	-0.168	99.67	12	-0.576	125.19	13	0.140	81.93
14	0.230	76.72												
Construct 4														
5	-0.748	138.43	6	0.648	49.59	7	0.088	84.98	8	-0.279	106.21	9	0.253	75.36
10	-0.559	124.02	11	0.074	85.78	12	-0.080	94.57	13	-0.005	90.29	14	-0.487	119.11
Construct 5														
6	-0.600	126.90	7	-0.247	104.30	8	0.186	79.28	9	0.214	77.65	10	0.630	50.96
11	-0.250	104.48	12	0.035	88.02	13	-0.015	90.83	14	0.253	75.36			
Construct 6														
7	0.581	54.51	8	0.081	85.33	9	0.197	78.63	10	-0.355	110.79	11	0.428	64.64
12	-0.074	94.25	13	-0.164	99.46	14	-0.280	106.24						

Construct 7												
8	-0.044	92.51	9	0.048	87.24	10	-0.238	103.79	11	0.309	72.02	12	-0.350	110.50
13	-0.257	104.89	14	-0.166	99.56									
Construct 8														
9	0.051	87.10	10	0.142	81.84	11	0.164	80.54	12	-0.135	97.76	13	0.249	75.56
14	0.463	62.40												
Construct 9														
10	-0.275	105.98	11	0.285	73.43	12	-0.152	98.72	13	0.212	77.77	14	-0.115	96.61
Construct 10														
11	-0.312	108.18	12	0.434	64.27	13	-0.287	106.68	14	0.272	74.19			
Construct 11														
12	-0.009	90.50	13	0.167	80.40	14	0.072	85.86						
Construct 12														
13	-0.419	114.78	14	-0.212	102.23									
Construct 13														
14	0.221	77.26												

TABLE XIX

CORRELATIONS AND ANGULAR DISTANCES BETWEEN CONSTRUCTS 2ND INTERVIEW, NURSE O

Construct 1												
2	-0.245	104.18	3	0.156	81.05	4	0.465	62.26	5	-0.727	136.64	6	0.310	71.92
7	0.216	77.55	8	-0.381	112.38	9	-0.226	103.09	10	-0.549	123.30	11	0.504	59.75
12	0.095	84.53	13	-0.101	95.78	14	-0.426	115.19						
Construct 2														
3	-0.408	114.09	4	-0.446	116.47	5	0.289	73.20	6	-0.169	99.71	7	-0.030	91.72
8	-0.015	90.85	9	0.557	56.17	10	0.229	76.75	11	-0.245	104.20	12	-0.116	96.65
13	0.084	85.18	14	-0.107	96.12									
Construct 3														
4	0.602	53.00	5	-0.519	121.28	6	0.389	67.13	7	0.349	69.57	8	0.157	80.97
9	-0.249	104.40	10	-0.695	134.03	11	0.601	53.06	12	-0.425	115.18	13	-0.120	96.90
14	-0.290	106.87												
Construct 4														
5	-0.894	153.37	6	0.714	44.47	7	0.571	55.15	8	-0.151	98.66	9	-0.293	107.05
10	-0.766	139.96	11	0.641	50.12	12	-0.115	96.58	13	-0.214	102.35	14	-0.509	120.61
Construct 5														
6	-0.613	127.81	7	-0.477	118.49	8	0.301	72.49	9	0.254	75.30	10	0.783	38.47
11	-0.691	133.71	12	0.009	89.47	13	0.134	82.32	14	0.569	55.29			
Construct 6														
7	0.970	13.98	8	-0.198	101.42	9	-0.337	109.69	10	-0.694	133.98	11	0.653	49.25
12	0.177	79.83	13	-0.212	102.22	14	-0.396	113.31						

Construct 7												
8	-0.129	97.43	9	-0.305	107.76	10	-0.670	132.06	11	0.630	50.92	12	0.170	80.24
13	-0.201	101.60	14	-0.352	110.60									
Construct 8														
9	-0.048	92.74	10	0.117	83.27	11	-0.117	96.71	12	0.101	84.19	13	-0.150	98.64
14	0.069	86.02												
Construct 9														
10	0.151	81.30	11	-0.004	90.23	12	-0.425	115.13	13	0.345	69.84	14	0.197	78.63
Construct 10														
11	-0.896	153.67	12	0.198	78.58	13	0.015	89.13	14	0.399	66.47			
Construct 11														
12	-0.078	94.48	13	0.057	86.75	14	-0.205	101.86						
Construct 12														
13	0.077	85.59	14	0.170	80.23									
Construct 13														
14	0.542	57.18												

PHYSICALLY WELL

PHYSICALLY ILL

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency	Angular Analogue	Element Rating Consistency Scores
C	1*	360	438	0.57	55	
G	2*	378	525	0.57	55	
F	3*	381	518	0.83	34	18
K	4*	400	499	0.84	35	
T	5	459	532	0.54	57	10
AD	6	461	536	-0.39	113	
B	7*	462	513	-0.29	107	
U	8*	465	525	0.64	130	16
Y	9	471	544	0.32	71	
AE	10	475	394	0.50	60	
Q	11	481	525	0.11	37	11
E	12	491	403	0.64	50	
L	13	495	513	0.04	88	
D	14	498	517	0.14	82	
AA	15	506	531	0.33	71	14
N	16*	507	550	0.33	71	
W	17	510	501	-0.21	102	28
P	18	512	493	0.57	55	
S	19	515	570	0.21	78	
J	20*	516	511	0.64	50	9
AC	21	519	540	0.13	83	11
M	22*	520	533	0.64	50	
A	23	531	598	0.07	86	13
R	24	541	419	0.64	50	22
AB	25	542	508	0.07	86	
X	26	546	422	0.79	38	
H	27.5	553	578	-0.21	102	
Z	27.5	553	436	0.96	16	
I	29	567	552	-0.44	116	
V	30	571	544	0.57	55	
AF	31	575	524	0.64	50	
O	32	584	568	0.45	63	21

LIGHT

HEAVY

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Scores
T	1*	430	517	0.21	78	8
Q	2*	441	409	0.79	38	6
R	3	465	546	0.61	52	31
I	4	485	507	0.96	16	
P	5*	488	539	0.04	88	
C	6	492	459	0.23	77	
N	7	498	502	-0.36	111	
U	8	502	512	0.43	65	5
AA	9*	506	489	0.46	63	8
M	10	509	572	0.06	66	
K	11	510	448	0.68	47	
G	12	521	453	0.57	55	
B	13.5	528	482	0.37	68	
X	13.5	528	427	-0.32	109	
J	15	533	518	0.82	35	2
Z	16	539	562	0.54	57	
AA	17	541	539	0.46	63	
E	18.5	542	565	0.64	50	
W	18.5	542	561	0.64	50	15
O	20.5*	544	565	0.18	80	4
1	20.5	544	514	0.18	80	
F	22	551	491	0.43	65	8
V	23	552	577	-0.64	130	
S	24	557	573	0.03	88	
AC	25	560	557	0.53	58	14
AF	26.5	561	578	0.39	67	
D	26.5	561	512	0.36	69	
H	28	569	560	0.29	73	
Y	29.5	575	455	0.46	63	
A	29.5	575	571	-0.25	104	8
AE	31	576	556	0.18	80	
AD	32	577	431	-0.36	111	

CONTINENT

INCONTINENT

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Score
F	1*	365	447	0.93	22	12
H	2*	370	502	0.04	88	
W	3*	384	433	0.79	38	0
M	4*	407	451	0.79	38	
L	5*	410	507	0.32	71	
B	6*	417	515	0.21	78	
C	7	425	560	0.39	67	
G	8	428	442	0.96	16	
Y	9*	431	499	-0.61	128	
AD	10	449	451	0.71	45	
X	11*	460	405	0.89	27	
AC	12*	461	492	0.89	27	14
R	13	462	486	0.71	45	15
S	14*	465	466	0.86	31	
Q	15	470	530	0.68	47	16
E	16*	473	448	0.62	52	
Z	17	476	476	0.86	31	
AE	18*	477	354	0.43	65	
K	19	493	480	0.61	52	
AA	20	503	506	0.89	27	1
I	21	504	511	0.82	35	
V	22	505	518	0.75	41	
J	24*	506	505	0.39	67	5
N	24	506	522	0.61	52	
AB	24	506	532	0.04	88	
T	26	525	525	0.21	78	5
A	27	526	539	-0.75	139	11
D	28	535	458	0.18	80	
P	29	538	525	-0.07	94	
O	30	539	553	0.71	45	14
U	31	543	521	0.93	22	4
AF	32	518	441	0.32	71	

PLEASANT

UNPLEASANT

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Score
H	1*	303	303	0.12	83	
G	2*	312	299	0.89	27	
Z	3*	327	357	0.68	47	
T	4*	332	262	0.61	52	10
R	5*	338	289	0.68	47	37
E	6*	344	376	1.00	0	
N	7*	357	443	0.71	45	
I	8*	360	399	0.71	45	
W	9*	373	580	0.54	57	35
F	10*	403	448	0.78	41	9
P	11	408	424	0.59	54	
Y	12*	409	489	0.71	48	
D	13.5*	411	530	0.59	54	
M	13.5*	411	427	0.46	63	
C	15*	415	376	0.93	22	
Q	16.5*	418	477	0.79	38	12
AC	16.5*	418	439	0.86	31	8
B	18*	421	419	0.61	52	
AE	19*	424	454	0.75	41	
U	20	427	472	0.86	31	8
X	21*	428	472	0.71	45	
AD	22	439	465	0.79	38	
J	23*	460	459	0.75	41	7
K	24*	472	519	0.18	80	
AA	25*	474	375	0.64	50	6
V	26*	494	570	0.89	27	
S	27*	515	513	0.68	47	
AB	28	518	513	0.57	55	
O	29	531	385	0.57	55	15
L	30	546	484	0.43	64	
A	31.5	557	516	0.61	52	8
AF	31.5	557	519	0.30	73	

HAPPY

UNHAPPY

Nurse	Rank	Tightness Score (1)	Tightness Score (2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Score
H	1*	324	395	0.32	71	
R	2*	330	289	0.86	31	6
T	3*	352	307	0.36	69	7
G	4*	355	358	0.96	16	
C	5*	378	528	0.57	55	
E	6*	380	411	0.68	47	
I	7*	388	414	0.75	41	
AE	8*	395	331	0.89	27	
AC	9*	402	532	0.32	71	6
B	10*	412	453	0.29	73	
M	11*	426	404	0.86	31	
K	12.5*	428	457	0.89	27	
X	12.5	428	551	0.18	80	
Q	14*	439	488	0.82	35	10
D	15	446	491	0.11	84	
S	16*	450	508	-0.14	98	
AA	17*	457	512	0.43	65	13
F	18*	465	460	0.71	45	7
L	19	475	495	0.89	27	
P	20*	476	400	0.71	45	
Y	21*	483	503	0.71	45	
O	22*	491	362	0.96	16	16
J	23.5	504	445	0.71	45	14
AD	23.5	504	459	0.29	73	
A	25	512	505	0.39	67	8
N	26	513	496	0.64	50	
AF	27	515	502	0.64	50	
AB	28	527	470	0.29	73	
U	29	535	499	0.71	45	6
V	30	551	563	0.51	55	
W	31	590	326	-0.64	130	25
Z	32	602	440	-0.43	65	

CONFUSED

Nurse	Rank	Tightness Score(1)	Tightness Score(2)	Construct Consistency Score	Angular Analogue	Element Rating Consistency Score
L	1*	313	461	0.86	31	
W	2*	356	383	0.89	27	15
AD	3*	366	375	0.71	45	
D	4*	370	541	0.29	73	
Z	5*	389	438	0.61	52	
Q	6*	410	388	0.96	16	13
X	7*	422	444	0.93	22	
AE	8*	424	337	0.78	41	
Y	9*	446	545	-0.21	102	
S	10	457	438	0.45	63	
T	11*	459	470	0.96	16	8
M	12*	461	466	0.64	50	
K	13.5*	468	501	0.96	16	
C	13.5	468	473	0.54	57	
V	15*	492	510	0.93	22	
A	16	496	497	0.89	27	13
U	17*	499	544	0.46	63	4
AA	18	503	507	0.71	45	8
AB	19	509	536	-0.07	9	
AC	20	510	485	0.86	31	8
B	21	519	511	0.79	38	
H	22	530	525	-0.34	110	
G	23.5	532	482	0.86	31	
O	23.5	532	472	0.71	45	14
F	25	532	528	0.86	31	12
I	26	536	568	0.14	82	
E	27	545	533	0.36	69	
P	28.5	549	485	0.75	41	
AF	28.5	549	570	-0.64	130	
J	30	550	557	0.18	80	6
R	31	560	544	-0.21	102	3
N	32	580	510	0.11	84	

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